tion of pyelonephritis to arterial hypertension of renal origin and to the small contracted kidney, pyelonephritis should be considered as one type of Bright's disease. The close interrelation between the various types of Bright's disease was emphasized.

Dr. Christian in discussing the paper made a plea for a more simplified classification of Bright's disease. He advocated a division into (1) acute stage; (2) subacute or chronic stages with edema; and (3) a chronic stage without edema. This last stage, as characterized by small shrunken kidneys, can be reached either by essential hypertension with vascular change, by glomerular damage, by infection, or even by primary tubular damage as in nephrosis.

NOTICES

REMOVAL

DAVID KUNIAN, M.D., announces the removal of his office to 19 Nahant Street, Lynn.

CAMBRIDGE HOSPITAL

The regular monthly meeting of the staff of the Cambridge Hospital will be held in conjunction with the Middlesex South District Medical Society in the lecture hall of the nurses' home at 10:00 a. m., January 19.

A clinicopathological discussion will be held. A buffet luncheon will be served at 1:00 p. m.

Please notify the director if you plan to attend.

JOSEPH M. WADDEN, M.D., *Secretary.*

TUMOR CLINIC, BOSTON DISPENSARY

Each Tuesday and Friday morning from ten to twelve-thirty there is a meeting of the Tumor Clinic of the Boston Dispensary, a unit of the New England Medical Center. All kinds of tumors are seen, discussed, and when indicated, treated with radium and high-voltage x-ray.

Physicians are welcome to visit this clinic and to bring a patient to the clinic for diagnosis.

HARVARD MEDICAL SOCIETY

The next meeting of the Harvard Medical Society will be held in the Peter Bent Brigham Hospital amphitheater (Shattuck Street entrance), Tuesday, January 25, at 8:15 p. m.

PROGRAM

Presentation of cases.

Medical Investigations in Peru in 1937. Drs. Richard P. Strong, Henry Pinkerton, and David Weinman.

Medical students and physicians are cordially invited to attend.

MARSHALL N. FULTON, M.D., *Secretary.*

JOINT MEETING OF THE SUFFOLK DISTRICT MEDICAL SOCIETY AND THE BOSTON MEDICAL LIBRARY

There will be a joint meeting of the Suffolk District Medical Society and the Boston Medical Library at the Boston Medical Library, 8 Fenway, on Wednesday, January 19, at 8:15 p. m.

The "Principles and Proposals" will be discussed by the following: Dr. Robert B. Osgood, Dr. Frank H. Lahey, Dr. Channing Frothingham, Dr. Elliott P. Joslin, Dr. Richard M. Smith and Dr. Roger I. Lee.

JOHN P. MONKS, M.D., *Secretary,*
Suffolk District Medical Society.

JAMES M. FAULKNER, M.D., *Secretary,*
Boston Medical Library.

CARNEY HOSPITAL

The monthly clinical meeting and luncheon of the Carney Hospital Staff will be held on Monday, January 17, in the Andrew Carney Assembly Hall, at 11:30 a. m.

PROGRAM

Case reports:
Epidural Cyst with Removal and Recovery.
Polycythemia.
Carcinoma of Cervix Treated with Radium: Subsequent Removal of Rapidly Growing Ovarian Tumors.

Pathological exhibit.

Determination of Blood Loss in Certain Standard Operations for Malignancy. Dr. Weston Buddington. Discussion by Drs. A. Fraser, William C. Moloney and Roy J. Heffernan.

Physicians and students are cordially invited to attend.

ROY J. HEFFERNAN, M.D., *Secretary.*

"GREEN LIGHTS TO HEALTH"

The following change in the "Green Lights to Health" broadcast, being given over Station WAAB at 7:30 p. m., on Wednesdays, has been announced. Dr. Elliott S. Robinson will speak on January 19. His subject will be "The Laboratory Fights Pneumonia."

BOSTON MEDICAL HISTORY CLUB

There will be a meeting of the Boston Medical History Club at the Boston Medical Library, 8 Fenway, on Monday, January 17, at 8:15 p. m.

Dr. Donald S. King will talk on "The Development of Our Knowledge of the Lung and Its Diseases."

BENJAMIN SPECTOR, M.D., *Secretary.*

NEW ENGLAND SOCIETY OF PHYSICAL MEDICINE

The regular meeting of the New England Society of Physical Medicine will be held at the Hotel Kenmore, on Wednesday evening, January 19, at 8:00.

PROGRAM

Some Fundamental Types of Physical Medicine and Their Practical Application. Dr. Franklin P. Lowry. Demonstrated by Miss Esther Klein. Discussion — Dr. Howard Moore.

The council will meet at 6:00; dinner will be served in the Empire Room at 6:30.

All members of the medical profession are cordially invited to attend.

WILLIAM D. MCFEE, M.D., *Secretary.*

THE NORFOLK DISTRICT MEDICAL SOCIETY

The regular meeting of the Norfolk District Medical Society will be held in the Hotel Kenmore, on January 25, at 8:15 p. m. Tel. Ken. 2770.

Business:

Report of Committee Investigating Minimum Fees to Be Charged for Services to Welfare Recipients. It is hoped that all interested in this work will attend.

Incidental business.

Communication:

The Management of Uterine Prolapse. Dr. Louis E. Phaneuf.

Collation.

FRANK S. CRUICKSHANK, M.D., *Secretary.*

NEW ENGLAND HEART ASSOCIATION

The next meeting of the New England Heart Association will be held at the Peter Bent Brigham Hospital, on Monday, January 24, at 8:15 p. m.

PROGRAM

The Development of Fatal Luetic Aortitis within Two Years After Primary Infection. Dr. Maurice A. Schnitker.

Errors in the Direct Method of Measuring Venous Pressure. Dr. Richard H. Lyons.

Physiological Effects of Artificial Fever. Dr. John A. Gibson, 2nd.

The Incompatibility of Hypertension and Active Tuberculosis. Dr. A. W. Contratto.

The Prognosis of Potential Rheumatic Heart Disease and Rheumatic Mitral Insufficiency. Drs. John A. Boone and Samuel A. Levine.

The Precordial Lead. Drs. Roger S. Robinson and A. W. Contratto.

Interested physicians and medical students are invited to attend.

JAMES M. FAULKNER, M.D., *Secretary.*

BOSTON SOCIETY OF PSYCHIATRY AND NEUROLOGY

The next meeting of the Boston Society of Psychiatry and Neurology will be held at the Boston Medical Library, on Thursday evening, January 20, at 8:15.

PROGRAM

Annual election of officers. Reports of secretary and treasurer.

Human Credulity as Illustrated by Witchcraft. Dr. Theodore Diller, of Pittsburgh, Pennsylvania.

H. HOUSTON MERRITT, M.D., *Secretary.*

BOSTON SOCIETY OF ANESTHETISTS

The next meeting of the Boston Society of Anesthetists will be held on Tuesday, January 25, at the Hotel Kenmore.

PROGRAM

Dinner. 6:30 p. m.

Business meeting. Election of officers. 7:40 p. m.

Scientific meeting. 8:15 p. m. Dr. Soma Weiss will speak on "Preanesthetic and Postanesthetic Problems from the Point of View of the Internist."

Physicians and medical students are cordially invited to attend.

ELEANOR B. FERGUSON, M.D., *Secretary.*

THE MASSACHUSETTS SOCIETY FOR SOCIAL HYGIENE

The Massachusetts Society for Social Hygiene is sponsoring an open meeting at Ford Hall, 15 Ashburton Place, Boston, Thursday evening, January 20, at 8:15.

Dr. Stanley H. Osborn, commissioner of health of the State of Connecticut, will speak on "The Connecticut Blood-Test-Before-Marriage Law," and will describe its genesis, its provisions and the way in which it has so far worked out.

Dr. Nels A. Nelson, director of the Division of Genito-infectious Diseases of the Massachusetts Department of Public Health, will discuss Dr. Osborn's paper. Dr. Nelson is opposed to such legislation and the meeting will thus give an opportunity for those who attend to hear both sides of this important question. There will be opportunity also for open discussion from the floor.

This meeting will be of particular interest to physicians, legislators, social workers and other professional workers. The meeting is open to the public and a cordial invitation is extended to all who are interested. There will be no admission fee.

TUFTS MEDICAL ALUMNI CLUB OF WORCESTER COUNTY

There will be a meeting of the Tufts Medical Alumni Club of Worcester County at the Bancroft Hotel, Worcester, on Wednesday, January 19. Dinner at 6:30 p. m. will be followed by a business meeting at 7:30 p. m.

Dr. Henry W. Hudson, Jr., will speak on "Conceptions and Misconceptions of Surgery in Infancy and Childhood."

C. BYRNE, M.D., *President,*
N. S. SCARCELLO, M.D., *Secretary.*

LECTURES AT THE FAULKNER HOSPITAL

A series of illustrated, public, health lectures at the Faulkner Hospital will be held in the hospital auditorium at 4 p. m. on Sundays. The schedule is as follows:

January 16 — Heart Ailments and Their Prevention. Dr. Burton E. Hamilton.

January 23 — Common Colds and Their Prevention. Dr. James A. Halsted.

January 30 — Skin Evidences of General Ill-Health. Dr. E. Lawrence Oliver.

February 6 — Practical Hints for the Expectant Mother (women only). Dr. D. J. Bristol, Jr.

February 13 — Stomach and Duodenal Ulcer. Dr. Edward S. Emery, Jr.

February 20 — Progress in Dental Surgery. Dr. Kurt H. Thoma.

February 27 — Backache. Dr. John D. Adams.

March 6 — Chest Operations in the Treatment of Tuberculosis. Dr. Harlan F. Newton.

March 13 — Diets and Vitamins in the Preservation of Health. Dr. Maurice B. Strauss.

March 20 — Diseases of the Prostate Gland (men only). Dr. Franklin Balch, Jr.

March 27 — Hay Fever and Asthma. Dr. Walter S. Burrage.

April 3 — "Nerves" and Their Relation to Insanity. Dr. Merrill Moore.

April 10 — Common Foot Ailments and Their Significance. Dr. Lloyd T. Brown.

April 24 — Syphilis: Its cause, prevalence and eradication. Dr. Channing Frothingham.

NEW ENGLAND PATHOLOGICAL SOCIETY

There will be a meeting of the New England Pathological Society in the large amphitheater of the Children's Hospital on Thursday, January 20, at 8:00 p. m.

Dr. C. P. Rhoads, Rockefeller Hospital, New York, will speak on "The Pathologic Morphology and Physiology of Refractory Anemia."

Physicians and medical students are cordially invited to attend.

J. B. HAZARD, M.D., *Secretary*.

SOCIETY MEETINGS AND CONFERENCES

CALENDAR OF BOSTON DISTRICT FOR THE WEEK BEGINNING MONDAY, JANUARY 17

MONDAY, JANUARY 17

*11:30 a. m. Carney Hospital, clinical meeting. Andrew Carney Assembly Hall.

8:15 p. m. Boston Medical History Club. Boston Medical Library, 8 Fenway.

TUESDAY, JANUARY 18

*9-10 a. m. Boston Dispensary. Types of Hemolytic Anemia. Dr. William Dameshek.

*10 a. m. - 12:30 p. m. Tumor clinic. Boston Dispensary.

*12 m. South End Medical Club. Headquarters of the Boston Tuberculosis Association, 554 Columbus Avenue, Boston.

WEDNESDAY, JANUARY 19

*9-10 a. m. Boston Dispensary. Clinicopathological conference. Dr. R. C. Wadsworth, Dr. Robert W. Buck.

*12 m. Clinicopathological conference. Children's Hospital Amphitheater.

*8 p. m. New England Society of Physical Medicine. Hotel Kenmore, Boston.

THURSDAY, JANUARY 20

8:30-9:30 a. m. Exchange visit, surgical and orthopedic staffs of the Peter Bent Brigham and Children's hospitals, held this week at the Children's Hospital.

*9-10 a. m. Boston Dispensary. Recent Advances in the Treatment of Pulmonary Tuberculosis. Dr. M. H. Holden.

*8 p. m. New England Pathological Society. Amphitheater of Children's Hospital.

8:15 p. m. Boston Society of Psychiatry and Neurology. Boston Medical Library, 8 Fenway.

8:15 p. m. Massachusetts Society for Social Hygiene. Ford Hall, 15 Ashburton Place, Boston.

FRIDAY, JANUARY 21

*9-10 a. m. Boston Dispensary. Here and There in Endocrinology. Dr. Fuller Albright.

*10 a. m. - 12:30 p. m. Tumor clinic. Boston Dispensary.

12 m., Clinical meeting of the Children's Medical Service, Massachusetts General Hospital, Ether Dome.

SATURDAY, JANUARY 22

*9-10 a. m. Boston Dispensary. Hospital Case Presentation. Dr. Samuel H. Proger.

*10 a. m. - 12 m. Staff rounds at the Peter Bent Brigham Hospital. Conducted by Dr. Henry A. Christian.

SUNDAY, JANUARY 23

4 p. m. Free public lecture. Harvard Medical School, amphitheater of Building D. Teeth: Deciduous, Permanent and Artificial. Dr. Paul E. Boyle.

4 p. m. Free public lecture. Beth Israel Hospital, Boston, in conjunction with the Women's Auxiliary. What to Do About Cancer. Dr. Harry F. Friedman.

4 p. m. Illustrated, public, health lecture. Faulkner Hospital. Common Colds and Their Prevention. Dr. James A. Halsted.

*Open to the medical profession.

JANUARY 14 — Tumor Clinic, Boston Dispensary. Page 94.

JANUARY 16 - APRIL 24 — Illustrated, public, health lectures. Faulkner Hospital. Page 95.

JANUARY 17 — Carney Hospital. Clinical meeting. Page 94.

JANUARY 17 — Boston Medical History Club. Page 94.

JANUARY 18 — South End Medical Club. Page 51, issue of January 6.

JANUARY 19 — Tufts Medical Alumni Club of Worcester County. Page 95.

JANUARY 19 — Cambridge Hospital, regular monthly staff meeting. Page 94.

JANUARY 19 — New England Society of Physical Medicine. Page 94.

JANUARY 20 — Boston Society of Psychiatry and Neurology. Page 95.

JANUARY 20 — Massachusetts Society for Social Hygiene. Page 95.

JANUARY 20 — New England Pathological Society. Notice above.

JANUARY 24 — New England Heart Association. Page 95.

JANUARY 25 — Harvard Medical Society. Page 94.

JANUARY 25 — Boston Society of Anesthetists. Page 95.

FEBRUARY 1 — Greater Boston Medical Society. Auditorium of the Beth Israel Hospital, Boston, 8:30 p. m.

FEBRUARY 2 — Second National Social Hygiene Day. Page 49, issue of January 6.

FEBRUARY 10 — Pentucket Association of Physicians. Hotel Bartlett, 95 Main Street, Haverhill, 8:30 p. m.

FEBRUARY 14 — American Board of Internal Medicine. Page 969, issue of December 9.

MARCH 10, 11, 12 — New England Hospital Association. Page 51, issue of January 6.

APRIL 4-8 — The American College of Physicians. Page 41, issue of July 1.

MAY 31, JUNE 1 and 2 — Annual meeting of the Massachusetts Medical Society. Hotel Bradford, Boston.

OCTOBER 17-21 — Clinical Congress of the American College of Surgeons, New York City.

DISTRICT MEDICAL SOCIETIES

BRISTOL SOUTH

MAY 5 — 5 p. m., New Bedford.

ESSEX SOUTH

FEBRUARY 2 — Council Meeting, Boston.

FEBRUARY 9 — Essex Sanatorium, Middleton. Clinic at 5 p. m. Dinner at 7 p. m. Speaker: Dr. John B. Hawes, 2d. Subject: Dust and Disease.

MARCH 2 — Lynn Hospital. Clinic at 5 p. m. Dinner at 7 p. m. Speaker and subject to be announced.

APRIL 6 — Gloucester Hospital, Gloucester. Clinic at 5 p. m. Dinner at 7 p. m. Speaker and subject to be announced.

MAY 5 — Censors meet at Salem Hospital, 3:30 p. m.

MAY 11 — Annual meeting, Salem Country Club, Peabody. Dinner at 7 p. m. Speaker and subject to be announced.

FRANKLIN

Meetings will be held at the Franklin County Hospital, Greenfield, at 11 a. m. the second Tuesdays of March and May.

HAMPDEN

Meetings will be held on the fourth Tuesday in January, April and July.

MIDDLESEX EAST

Meetings will be held at the Bear Hill Golf Club, Stoneham, at 12:15 p. m. on March 16, and May 11.

MIDDLESEX NORTH

Meetings will be held at the Vesper Country Club, Lowell, on January 26 and April 27.

MIDDLESEX SOUTH

JANUARY 19 — Page 1113, issue of December 30.

NORFOLK DISTRICT

JANUARY 25 — Page 94.

FEBRUARY 23 — Hotel Kenmore. 8:15 p. m. Dermatitis Venenata Due to Cosmetics and Industrial Irritants. Dr. John G. Downing. Discussion by Dr. Francis P. McCarthy.

MARCH 29 — Hotel Kenmore. 8:15 p. m. Subject to be announced but to be related to diseases of the kidney. Dr. Albert A. Hornor.

MAY — Annual meeting.

The censors meet on the first Thursdays of May and November in each year.

NORFOLK SOUTH

Meetings held at 12 noon.

FEBRUARY 3 — Norfolk County Hospital, South Braintree.

MARCH 3 — Norfolk County Hospital, South Braintree.

APRIL 7 — At the Quincy City Hospital.

MAY 5 — Annual Meeting.

PLYMOUTH

Meetings will be held at 11 a. m. on January 20, March 17, April 21, May 19 and July 21.

SUFFOLK

JANUARY 19 — Joint meeting with Boston Medical Library. Page 94.

MARCH 15 — Joint meeting with Boston Obstetrical Society.

WORCESTER

At the following meetings, except the annual meeting, dinner will be at 6:15, to be followed by business session and scientific program.

FEBRUARY 9 — Worcester State Hospital, Worcester.

MARCH 9 — Memorial Hospital, Worcester.

APRIL 13 — Hahnemann Hospital, Worcester.

MAY 11 — Afternoon and evening, annual meeting. Place and schedule of program to be announced.

The New England
Journal of Medicine

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VOLUME 218 JANUARY 20, 1938 NUMBER 3

BRONCHIECTASIS

Physical and Psychologic Manifestations

EDWARD D. CHURCHILL, M.D.*

BOSTON

WHEN the operative mortality of lobectomy for bronchiectasis was at least 50 per cent and the results in many survivors uncertain or imperfect, a cautious attitude in advising the operation was understandable. At the present time, however, we are privileged to report a mortality rate of 4.7 per cent in a series of 84 cases with lobectomies for bronchiectasis. This includes all cases in which the operation has been done or attempted. What is even more encouraging, only 1 death has occurred in the 66 unilateral lobectomies performed in the past four years, giving an operative mortality of 1.5 per cent. This death occurred as the result of Type III pneumococcus pneumonia and pericarditis ten months after operation, in a patient who had been discharged from the hospital. As a residual empyema cavity was still present and may have been a contributing factor, the death is recorded as an operative mortality. In 6 cases of bilateral disease a lobectomy has also been carried out on the second side. There has been 1 death among these 6 cases, attributable to bronchiectasis in the remaining upper lobes.

All the patients who have survived have been greatly helped by the operation, and about 85 per cent have been entirely cured. The operation causes no noteworthy deformity. With rare exceptions, operative incisions and bronchial fistulas heal within a few weeks. There is only one persistent bronchial fistula in our entire series — the first patient operated upon by a method now abandoned. These statistics give an entirely new status to the operation of lobectomy, and stand as a challenge to the physician who refers to surgery in bronchiectasis as a last resort. The indications for recommending lobectomy must be redefined on the basis of a careful evaluation of the symptoms of the disease.

From the Thoracic Clinic and Surgical Services of the Massachusetts General Hospital, Boston.

Read before the Eastern Sanatorium Association, October 30, 1936.

*John Homans Professor of Surgery, Harvard University; chief of the West Surgical Service, Massachusetts General Hospital.

Only a close acquaintance with a number of patients in all stages of the disease, not only before but after the operation, gives a conception of the profound effect bronchiectasis may exert upon the life of an individual. It is not necessary to dwell upon the suffering produced by gross forms of the disease. Patients with profuse foul sputum have long been referred to as social outcasts. The effects of the so-called "milder" forms of bronchiectasis must be evaluated now that it is practical to extend the indications for operation. Members of the medical profession are apt to call bronchiectasis mild if the patient appears to be in a state of good nutrition, and if the sputum is not offensive enough to drive other patients from the waiting-room.

Bronchiectasis, severe or mild, is a disease of youth and early adult life, and exerts its influence on both body and mind during the formative period — an age in which social contacts are established, personality is crystallized and foundations for life's work are laid. Handicaps and physical limitations, which a mature individual might integrate or compensate for, produce an intense effect during these important years.

A productive cough is usually the presenting symptom. It may in itself cause distress and inconvenience to the patient, and almost invariably renders him sensitive to its effect upon others. He is reluctant to appear at social gatherings or to attend the theater. Even a trip in the subway may prove disastrous unless a patient can calculate when his next "emptying time" is due. A spell of coughing is apt to be induced by laughter, alarming other people and causing the patient acute embarrassment. The result in a sensitive individual is a tendency to shun social contacts. Invitations are refused. The sufferer becomes increasingly shy and solitary. Parents and the immediate family may be sympathetic and tolerant, but others are oftentimes cruel and ruthless. Casual friends and classmates, having no insight into the state of af-

fairs, are critical, and are prone to suggest that the cough is an annoying habit which the patient could control if he tried to do so.

Bronchiectasis is characterized by acute pneumonic episodes initiated by respiratory infections, particularly during the winter months. The acute infections interrupt progress in school or cause loss of time from work.

In the intervals between acute attacks, the smouldering infection in the lung or the retention of pus in the dilated bronchi may give rise to a sense of fatigue that is insidious and vicious in its effects. When this has persisted for years a patient may accept it as a normal state of affairs, and may become aware of his limitations only when relieved by cure. On the other hand, he may be totally unable to work, or if he can work, the routine of the day absorbs all available energy so that he has little ambition to undertake other activities. One patient remarked that she was always glad to get home from school just to rest. Many are unable to keep up with their schoolwork.

The lack of physical endurance paralyzes plans and ambitions for a future career. Over and over again patients confess that they had wanted to take up certain vocational training, but realized that they lacked the physical energy to see it through.

The confusion with pulmonary tuberculosis because of the cough, sputum and hemorrhages raises important psychologic conflicts. When a person develops pulmonary tuberculosis he usually faces the facts, and after a more or less stormy period of adjustment develops a philosophy concerning his disease. I do not wish to imply that the psychologic problems of tuberculosis are simple ones, but they can be faced as a more clean-cut problem. In many respects it is better to have tuberculosis outright than to be constantly suspected of having it. The external world is more understanding and sympathetic if a definite label can be affixed to a complaint. Tuberculous patients find companionship in the fraternity of this disease. Nearly all my patients with bronchiectasis have been fearful of or sensitive about tuberculosis. One girl was sent home from college in the middle of her second year because she was "in the last stages of consumption." Many others have been unable to hold steady employment because fellow employees became alarmed about their cough. One patient sought out-of-door employment on a milk route, with the result that complaints came from customers who feared that he had tuberculosis.

Hemorrhages are frequent occurrences in bronchiectasis, and are always very disturbing to the patient. Again, a patient with tuberculosis accepts a hemorrhage as a natural event in the course of his disease. He knows of other patients who have had similar occurrences, and is not unduly alarmed. The hemorrhages in bronchiectasis instill the terror of the unknown. They may be so frequent and so severe as to incapacitate the patient over long periods of time. Sanatorium care is often prescribed for hemorrhage mistakenly diagnosed as evidence of tuberculosis.

The menstrual cycle is frequently disturbed by the chronic invalidism of the disease. Scanty and irregular flow with delayed adolescence appears to reflect the general state of ill-health. In a patient with bilateral bronchiectasis, regular and normal menstruation was established for the first time in her life at the age of twenty-seven after bilateral lobectomy. Menstruation prior to this time had occurred only at irregular intervals of several months.

Young women with bronchiectasis usually consider themselves unfit to bear children. This impression may be obtained directly from their medical adviser, or may find origin in the remarks of friends and relatives.

Patients with basal bronchiectasis find that the exertion and posture of sexual intercourse provoke coughing and expectoration. If the sputum is foul the results may be peculiarly embarrassing.

If the symptoms of bronchiectasis are at all severe, the patient early becomes aware of the impossibility of getting married. This rarely presents itself as an acute psychologic problem, as the limited social contacts lead to this conclusion insidiously but inevitably. Patients are rarely willing to admit that this is a problem, but when the doors both to marriage and to a career of choice are closed, the future appears to hold little promise for any young person.

Young adult patients rarely hesitate to elect a chance of cure if the possibility is offered. In spite of the mortality statistics already referred to, the operation of lobectomy has always been presented to the patient as a serious affair. In the few instances in which operation has been refused, the negative reaction has been due to prejudice, low-grade mentality or pressure from outside sources. Unfortunately, we still see the patient who returns to his family doctor for advice and is told that the operation is an impossible one and that to consent to it means certain death. Having in mind certain extensive operations that have been necessary in neglected cases of chronic empyema, the uninformed doctor pictures the horrible deformities that result from thoracic surgery.

As a matter of fact, there is rarely any deformity whatsoever following lobectomy. If desired, the operation can be performed through an intercostal incision without even the removal of one rib.

It may appear that I have drawn too harsh a picture of what is called mild bronchiectasis. It is true that many patients are able to make an admirable adjustment to the disease. The description has been compiled, however, directly from case histories. Members of the lower mental strata naturally offer fewer psychologic problems or are inarticulate concerning them. Nearly every patient will discuss these aspects of the disease more freely after the operation has been completed. This is because a closer relation with the surgeon has been established during the emotional crisis of the operation, and because when freed of the disease the patient's struggle with it comes to the surface.

In determining indications for operation in the given case, the physician must have insight into these subtler aspects of the malady. It is impossible to measure the severity of bronchiectasis by the number of cubic centimeters of sputum in the cup or by the foulness of the breath. The mere fact that a patient is able to work or attend school is not a safe criterion of his happiness. The effect of the disease on the personality of the patient and on his life as a whole must be taken into consideration.

It is particularly important that bronchiectasis be recognized and adequately treated early in life; in this way serious psychologic difficulties and personality changes may be avoided. Patients between the ages of five and twelve stand the operation admirably. Young adults should be operated on before they assume the social responsibilities of marriage; or before the door to a happy marriage is closed to them by their illness.

The following case records are typical of the stories that can be obtained from patients with bronchiectasis. They express better than any description the actual nature of the disease.

CASE REPORTS

Case 1. I. E., a 25-year-old woman, had extensive bilateral disease dating from pneumonia in childhood. A great deal of her schoolwork was done at home, causing her to miss the social life of her schoolmates. She completed her college education, but devoted all her limited energy to actual study. While taking vocational courses she was frequently told, "Your work is excellent, but your health is so poor we cannot recommend you for a position." She continually felt that she was "obnoxious to people," despite the fact that the sputum was foul only at intervals. Because of this, she disliked having a roommate. On several occasions older girls at college took her to task for the cough, telling her that "if you tried harder, you would cough less."

She was examined yearly for tuberculosis, and in the middle of her second college year was sent home because she was "in the last stages of tuberculosis." An experience that almost proved to be a catastrophe happened in her last college year. She fainted in a classroom, and while she was unconscious a large amount of sputum poured out on the floor. Her embarrassment would have caused her to leave school if she had not been within two months of completion of the course.

A very intelligent mother trained in educational and social work has been able to handle the problems of adjustment in an admirable way. The girl was never held back, but urged to enter sports and other activities up to the limit of her endurance. A close circle of family friends provided an enjoyable social background. The most difficult period of adjustment was between the years of 14 and 18.

Although emotionally well adjusted to her handicap she presented herself at the age of 25, realizing that her symptoms were steadily becoming worse. Employment in the fields in which she had struggled for an education was closed to her. Thoughts of marriage had long been thrust out of her mind. When the dangers and discomforts of a bilateral lobectomy were outlined they were accepted cheerfully and without fear. The courage and philosophy gained through years of suffering have carried her through successfully.

Case 2. K. B., a 5-year-old boy cannot be expected to have insight regarding his disease or even to give a coherent account of symptoms. The objective signs of the disease were minimal. Fortunately a very intelligent mother realized that the child's activities were limited by the disease and a lobectomy was performed. Four months after the operation, when the boy had gained 12 lb. in weight and showed a corresponding gain in strength, Mrs. B. commented as follows: "My neighbors did not understand how I could give my consent to such a dangerous operation because they thought K. was perfectly well and could run and play like the other boys, but I knew he was not well, and the great change after the operation certainly proves it."

Case 3. H. S., at the age of 23, is a confirmed hypochondriac. His father is a well-to-do manufacturer who has done everything possible for the boy's welfare. The disease began in childhood. Three years were spent in the Southwest. Cough and sputum were never excessive, but constant fatigue and its resulting lack of ambition colored his personality. He was desperately afraid of tuberculosis. It took this young man considerable time to summon courage to face the operation. The influence that turned the tide was a chat with a cured patient.

Fortunately the convalescence was smooth and uneventful. Even so, the patient imagined every possible complication. It is doubtful whether he will completely overcome his neurotic tendencies, even though the organic basis has been removed. A lobectomy early in life might well have prevented the development of this abnormal personality.

Case 4. The experience of A. L., a 28-year-old man, proves the value of our admonition that bronchiectasis should receive adequate treatment before marriage or other social responsibilities are undertaken. He suffered very little from his bronchiectasis during his bachelor days. He completed his education and held a good position as sales manager in a large company. On return from work he would lie down for an hour's rest before dinner. Three evenings a week were spent in a gymnasium. He was an expert tennis player.

He married an attractive girl whose home was in a distant city. Taking up her home in a strange place, she naturally leaned heavily upon him for entertainment. He began to make long automobile trips in order to get home for dinner. The pair would frequently go to bridge parties or to the theater in the evening. Although the

man had always considered himself physically fit for anything, the pace began to tell, and the disease flared up with an attack of pleurisy. He began to feel tired, and wanted to stay home and rest in the evening. Rather than face the situation frankly with his wife he assumed a defensive attitude, becoming irritable and uncommunicative. When he became affectionate he would suddenly turn away to conceal a cough, and would find his action misinterpreted. He tried to conceal his illness from his wife and her family, feeling that he would be blamed for having married in the knowledge that he had had his disease for years. As a child, he concealed his cough by saying that he was sick to his stomach; now he concealed his cough from his wife by turning on the faucets in the bathroom.

Matters went from bad to worse; within 10 months of the marriage the wife was in tears and returned to her home, and the patient was anxiously seeking a cure for his disease at any risk. A careful study of the situation made it probable that the disease was the primary element and the marital difficulties secondary, so that lobectomy was undertaken. The patient's defensive attitude was carried through the operation and into convalescence; he tried to conceal the fact that he was undergoing a serious operation for a condition that was present before his marriage. After his complete recovery the whole situation was talked over with both him and his wife. They are now trying to make a new start in their married life.

Case 5. A. P., a 32-year-old woman, wrote the following account, entitled "How Bronchiectasis Has Affected My Life."

"My cough I have had with me daily since I was 4 years old. I don't know just what it meant to me when I first had it. I remember my mother's hovering over me at night, bundling me up in the winter, and even in the summer telling me to stay in the sun; I knew my playmates did not have to do this. I also remember a group of teachers in the primary school calling me over and asking me about it; I think I was pleased with the attention but did not know what to say. I used to spit for the other children and tell them it was 'poison.'

"A few years later I began to get irritable with my mother. Every time I turned around there was a spoonful of cough medicine waiting for me. I openly rebelled against it all and could not be trusted to take the medicine. It may have been this situation that led my mother to suspect me of being deliberately careless about rubbers, gloves, buttoning my coat, and so forth. All this was a bone of contention between us. My mother commented frequently on the change in my disposition, and there grew up a legend about my former good-naturedness.

"I now know from stories my mother has told me, and from my own experience as an adult, that her life was considerably upset by friends and relatives. Half of them took my cough very seriously and may have been critical of her for it, and the other half said it was nothing and were disgusted with the attention she paid me. When I had attacks of bronchitis or pleurisy, she always cried and thought I was going to die, but I can't recall that I had any such fear.

"During this period (roughly from 9 to 12) I grew to be annoyed with anyone else who drew my attention to it. The whole thing was a nuisance to me. I was advised by an aunt never to laugh because it would aggravate the cough, and many people told me they couldn't tell the difference between my laugh and my cough. My music teacher used to compare my cough with one she had had before she went to Canada for treatment for tuberculosis; I had great respect for her, but I was somewhat indignant that such a comparison should be made. When someone would say, 'You have a cold all the time!' I would reply crossly, 'It isn't a cold!' But I couldn't tell them what it was, and I felt very foolish. All the doctors I had been to had never given a name to it; they had only assured my mother that I would outgrow it.

"By the time I went to high school I had developed a sinus infection that certainly completed the picture of 'a cold all the time.' I had plenty of girl friends who were used to me as I was and accepted me, so that I had a happy enough time with them, but I did not go on to the new things — organized sports and friendships with boys. I had grown very self-conscious and was afraid of comments. When any were made, I passed over them as quickly as I could, no longer insisting that I did not have a cold. The classes were 50 minutes long with 10 minutes between, and this used to help me, because in the interval I could go off by myself and cough all I wanted to. Long meetings in the assembly hall were a problem, however, and I sometimes begged off, but I couldn't do it often because the instructors began questioning me. While I was still in high school I went to another city as a delegate to a conference. At one of the meetings, which was long, I became quite choked up and began to cough a good deal. I tried to stifle it and apparently the result was funny, because it made a group of girls laugh, and afterward the leader asked me what those queer sounds were that I had made. This particular experience was unusually humiliating. My family did not object when I stopped going to church after one of the members of the congregation loudly announced that she would like to put a long brush down my throat to scrape it out.

"At college the girls soon pointed out to me that I was a spoiled child and that I had no poise. They also called me a sissy because I had so little endurance when we went mountain-climbing, or even just hiking. But nothing much was said about my cough, for which I was duly grateful, and before the 4 years were over I could go to chapel and classes and be fairly relaxed. I did little in the way of extracurricular activities, and studied only enough to keep a B average, for my health was my first care. I took no medicine, but I was scarcely ever sick. The only time I went to the infirmary, I did so voluntarily to get a rest. There was another girl in the dormitory with a cold. During the night every time I coughed the nurse came in and gave her some medicine. In the morning she resentfully told the doctor about it. They decided to keep me until the cough was better. I had to tell my story, and they scratched their heads but let me go. Then there was a puzzled gym teacher who stood beside me during a vital-capacity test, insisting, 'But you certainly *can* do better!' until she gave up in disgust. But on the whole college wasn't so bad.

"After graduation I went immediately to a state hospital as a psychometrist. I was 20 years old but was still lacking in poise, and this was especially apparent in my contacts with men, which began at this time. One told me I had an inferiority complex. Someone from the hospital told my family that when I first arrived it had been thought I must be homesick because I seemed so depressed. These remarks did not trouble me, but made me begin to notice my reactions and moods. The hospital staff took a personal interest in my difficulties, and 2 years later offered to do some sinus operations, which helped me a good deal.

"After doing mental testing for 4 years I went to the Mid-West and studied social work. One day I noticed that it was hard to breathe, and that it was fatiguing to move about. This feeling came in spells and was frightening.

At the university clinic I was told that I had asthma, owing to the fact that I was allergic to many different foods, plants, and so forth. For 1 of the 2 years there I was put through a desensitization process, which was very tedious and brought no good results.

"When I returned to the state hospital, — this time in the social-service department, — I was very glad to tell people at last what it was that ailed me. Until this time I had thought that no one in the world had ever had a condition like mine. But the remedy seemed worse than the disease, so I did nothing about serums or cutting out all the foods that I was told to. Even a slight attack of asthma was enough to depress me, and send me almost into a panic. It would make me feel as though I were going to be a semi-invalid all my life, and the future looked very black. As soon as the attack was over I lost this fear.

"I began to read about asthma having an emotional basis, and had plenty of encouragement to think along this line from various psychiatrists I knew. For a year I had analytic therapy, which did not, however, change my physical condition, unless possibly indirectly by helping me to become somewhat more mature emotionally.

"During the 5 years after I had left the West I did not consult any doctor (except that I always saw our family physician at various times and frequently had physiotherapy and other general treatment from him). I really felt that the doctors would have nothing to offer. I still thought that somehow my troubles might all be on a psychologic basis. I knew I was unhappy because of my restricted social life, my failure to marry, and so on. I wanted children; yet it seemed as though I had no right to have them. I had been told, too, that with my cough I should probably be unable to carry a child. All this meant that I should have to remain a social worker, and I wasn't even sure I could manage that. I should be expected to go on to more responsible, demanding positions. Even now I have to go to many meetings where the old problem comes up. Last year, after a series of meetings, one social worker spoke to me about it, and said I certainly sounded as though I were in the last stages of tuberculosis.

"Early last summer I was coughing unusually hard and had some pain in my chest. I felt that I could not go on any longer, and was ready to give up my work and go to Arizona or its vicinity. Someone persuaded me to consult a specialist first.

"N. B. There are various reasons why my social life has been restricted. Many things are too strenuous for me even to attempt. The fact that I require more rest than most people made it necessary for me to cut down somewhere, and I couldn't do so in my work. Unless you are always ready to do things, people get out of the habit of including you. At the theater and the symphony, coughing disturbs other people."

Case 6. M. J., a 42-year-old man, displayed quite a different reaction to the disease. His cough dated from early childhood. At the age of 14 or thereabouts he chanced on some correspondence concerning his illness, between his mother and a patent-medicine company. He learned that he had "tuberculosis and Bright's disease." Shortly thereafter he overheard the family doctor assuring his mother that he would "be dead at 17," whatever was done for him. His response was the fatalistic "what-the-hell" attitude. As his illness was going to "get him" and he was doomed to "die anyway," he decided to enjoy life while he could.

He took up the life of a wanderer and hobo. In a lumber camp in the Rocky Mountains he cut a trap door by the head of his bed for convenience in expectoration. On the prairies of northwestern Canada he was made to sleep in a separate shack because fellow workmen feared tuberculosis. During the World War he tried desperately to suppress his cough while on a night scouting expedition in no man's land. Unable to keep from coughing, he was sprayed by machine-gun fire and barely escaped with his life.

He finally ceased his wandering when he found the disease was not incompatible with life, and married. He now works steadily as a plasterer, but during the past 2 years he has noticed a steady increase in shortness of breath and a lack of endurance.

By adopting a casual and "hard-boiled" attitude toward the disease, he altered the course of his whole life, but protected himself from the embarrassment caused by specific symptoms. His cough and expectoration have not kept him from social contacts or marriage. Looking backward, he regrets that he did not settle down to a good trade which was open to him at 18.

This attitude is frequently encountered in young boys, but is rarely projected into adult life as in this patient; the fact that his sputum was not foul enabled him to play his role with success. A similar attitude is well expressed by the patient in Case 5, who spit for the other children and told them it was "poison." It usually collapses with adolescence, when contacts with the opposite sex become desirable.

Case 7. L. D., a young man, aged 17 years, had steady employment in a butcher shop in a small New England town; he found that the copious and very offensive sputum coming from a bilateral basal bronchiectasis absolutely prevented him from forming friendship with girls. He came to Boston ready to accept any risk to be freed of his disease. A bilateral lobectomy has left him with no cough and no sputum.

CONCLUSIONS

Experience in the study and treatment of bronchiectasis has led me to two conclusions. First, established bronchiectasis is not a self-limited disease but a persistent and often progressive malady, constituting even in its milder forms a serious physical and psychologic handicap to the patient and eventually terminating in death. Secondly, while postural drainage, bronchoscopic drainage, change of climate, operations on nasal sinuses, phrenic-nerve paralysis, artificial pneumothorax, thoracoplasty, x-ray treatment, lipiodol instillations, injection of arsenicals, vaccine therapy and a host of other so-called remedies may in certain instances bring gratifying symptomatic relief, there is no real cure but extirpation of the diseased segment of lung.

Fortunately, the time has arrived when the medical profession can stop fumbling with bronchiectasis and approach its treatment by a direct, effective and safe form of therapy. A physician shoulders a grave responsibility when his advice withholds the benefits of surgery from a young patient suffering from this disease. Operation can no longer be termed a measure of last resort.

A NEW METHOD OF DEALING WITH FUNNEL CHEST

PHILEMON E. TRUESDALE, M.D.

FALL RIVER

THE developmental anomaly of funnel chest was first reported by Bauhinus in the sixteenth century, but few cases had appeared in the literature up to 1900. This deformity is fairly common among children admitted to hospital clinics. Treatment, when required, is medical. In adults, however, funnel chest may greatly incapacitate the individual, so that some form of mechanical readjustment of the sternum is necessary in order to obtain permanent relief. Surgical needs for this complaint have been recognized in Paris by Ombrédanne and Garnier,[1] who adopted an operation that was fairly well standardized by 1935. It consisted of a T-shaped sternotomy with resection of the costal cartilages as required, followed by immobilization with a special orthopedic apparatus.

The cause of funnel chest is unknown. Many writers refer to its origin as congenital, while others believe that the condition may be acquired through trauma. Only a few traumatic cases, however, have been reported, because accidents which result in collapse of the sternum usually end fatally.

Our interest in this subject began in April, 1935, when we discovered that a funnel chest was a contributory cause of death following an operation for diaphragmatic hernia in a patient nine years of age. The marked degree of dextrocardia which existed was attributed to a shifting of the mediastinum due to the presence of the herniated hollow viscera. Much to our surprise, however, we found that with repair of the diaphragm and the return of a negative pressure in the left pleural cavity, the heart did not change its position from the extreme right. The patient died on the fourth day after operation. Postmortem examination revealed a permanent midline partition made by the sternum, and the physical impossibility of the heart's shifting to a normal position. The right ventricle showed hypertrophy, which was undoubtedly caused by pulmonary resistance.

Our next patient with this deformity was admitted to the hospital March 11, 1936 (Fig. 1). He was eighteen years old, under weight, and appeared sick. For several years he had had dyspnea and "stomach trouble" associated with anorexia, nausea and dysphagia. Three months before admission the symptoms had become so severe that he was forced to give up his work as a clerk. His weight had dropped from 170 to 140 lb. in the last year.

Operation was done March 28 under avertin-ether anesthesia. The procedure has been described in an article[2] published in 1936. Briefly it consisted of disengaging the body of the sternum by severing the costal cartilages on both sides and dividing the

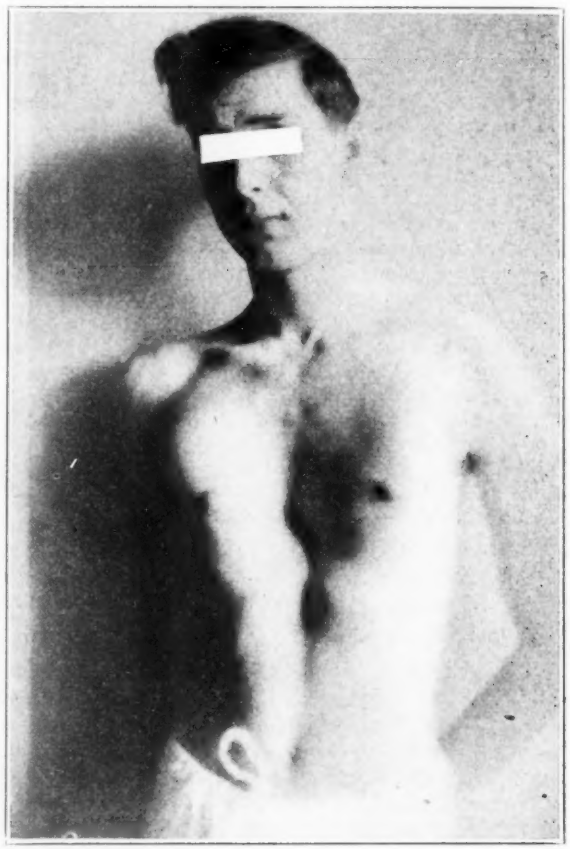

Figure 1.

sternum horizontally at the level of the third intercostal space. Two perforations were then made through the lower third of the sternum about 2 cm. apart, and through them a heavy silver wire was passed so as to form a loop for extension. The wire was attached to a windlass suspended from the crossbar of a wooden frame incorporated in a plaster cast fitted to the chest.

With this apparatus we were unable to obtain the desired degree of elevation of the sternum, because tightening the windlass produced a suction which closed the esophagus. Moderate elevation,

Presented at the annual meeting of the New England Surgical Society, Providence, October 1, 1937.

however, obviated this difficulty. On April 15, eighteen days after operation, the plaster cast was removed. X-ray examination of the chest in the lateral position showed that the sternum descended in a vertical direction. The posterior border of the sternum was 8.4 cm. from the anterior border of the thoracic spine, as compared with 3.5 cm. in the preoperative film.

This patient was discharged from the hospital May 24, two months after operation. His breathing was no longer restricted, cardiac action was free and digestion was normal. Nevertheless, we realized that it was too early to determine the ultimate result. Subsequent events indicated the importance of a conservative point of view in evaluating the results of this operation.

A search of the literature on funnel chest revealed very few operative cases. When only two or three costal cartilages were severed, symptoms ceased for a short time only and the end results were not satisfactory. Sauerbruch[3] was the first to do extensive rib resection for this deformity. His first case was reported in 1913. He operated upon a second patient in 1931, but symptoms recurred.

Operative results in 9 congenital cases in children treated surgically were presented at the French Congress of Surgeons in 1934. These cases represented the surgical experience with funnel chest in Europe. The standard procedure was that of Garnier, a T-shaped sternotomy and ample resection of costal cartilages, as required.

In this country, Alexander[4] of Michigan, in 1931 reported 2 traumatic cases treated by operation. The first patient was a boy sixteen years old, injured four years previously while wrestling. Even after bilateral resection of five costal cartilages the sternum could not be elevated. It was necessary to divide the sternum longitudinally before this structure could be raised. A special apparatus was employed for traction. A tendency to recurrence disappeared after the patient had been given a course with blow bottles and an apparatus connected with the hospital air-suction system.

Alexander's second patient was a woman twenty years old who had been injured two years before in an automobile accident. The body of the sternum was removed from the second to the sixth rib, with resection of the attached costal cartilages. Symptoms were relieved and did not recur.

Carr[5] reported a case in a young woman nineteen years old who was operated upon by Head. He removed the left third, fourth, fifth, sixth and seventh costal cartilages, and the right fourth, fifth, sixth and seventh, and resected the lower half of the sternum and the xiphoid process. Carr refers to a second case which ended fatally, but gives no details. When a third case came to his attention, Carr stated that he was reluctant to subject another patient to surgery because of the great risk involved.

Our third case of funnel chest was seen January 6, 1937. The patient, a man thirty-one years old, had a depressed sternum dating from early childhood, but the deformity had given him no discomfort until two years previously. He then complained of sharp pain in the region of the left nipple, occurring about once a week. Epigastric distress, nausea and vomiting occurred at short intervals. Symptoms were more severe after the ingestion of fatty foods and after heavy meals. There was no dyspnea, no palpitation or cough and no noticeable loss of weight, but the man was unable to work.

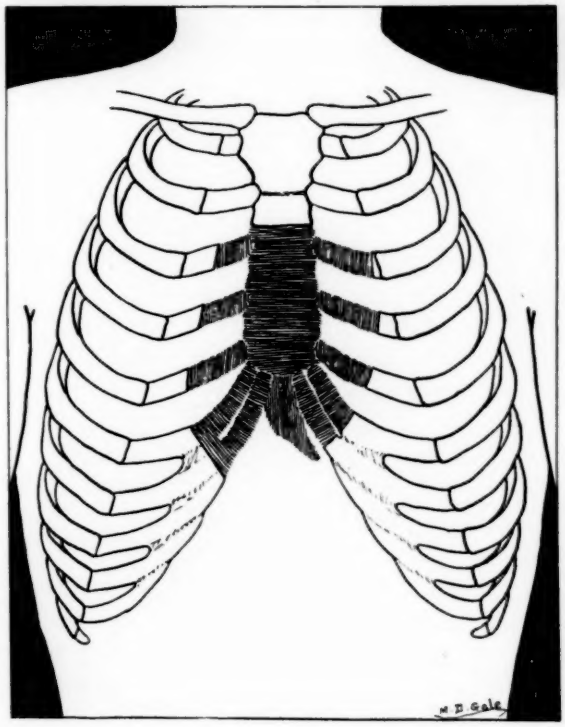

Figure 2.

X-ray examination of the chest two weeks before entry showed that the posterior surface of the lower end of the sternum was 1 cm. from the anterior surface of the thoracic spine. The heart was entirely to the left of the midline. A lateral view of the spinal column showed marked scoliosis of the thoracic spine, convex toward the left. The electrocardiographic tracing showed some myocardial damage and sinus tachycardia.

From our experience and that of Alexander, Head, and the French surgeons, we concluded that the only operation which offered hope of perma-

nent relief of symptoms was a removal of the sternum. Therefore on January 16, ten days after the patient's admission, we did a subtotal excision of this structure. The thorax was opened by a lapel incision. The sternum, together with the cartilaginous portions of the third, fourth, fifth, sixth and seventh ribs, was removed (Fig. 2). During this procedure a minute opening was made in the pleura on the right side; this resulted in a pneumothorax. On the third postoperative day x-ray examination showed collapse of the right lung and a small amount of fluid at the base. The wound drained a moderate amount of seropurulent fluid. On the twelfth day death resulted from a sudden massive hemorrhage from the wound. Postmortem examination revealed an inflammatory process in the mediastinum with a thin seropurulent exudate. There was also an acute suppurative pericarditis. The source of the hemorrhage was an opening in the superior vena cava.

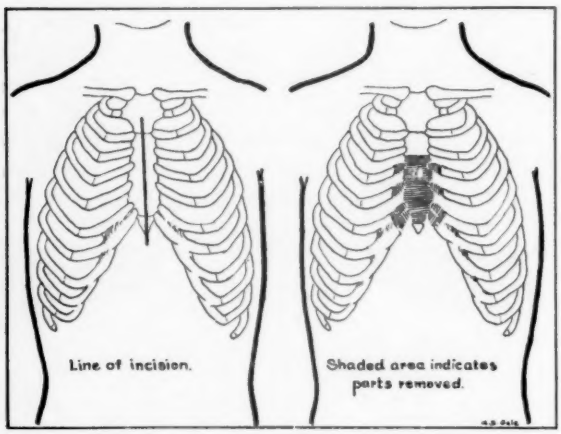

Figure 3*a*. Figure 3*b*.

Two months after this experience the young man who had been operated upon March 28, 1936, returned to the hospital stating that the sternum had again become depressed to the degree present before operation. His symptoms had recurred, and he was again unable to work. He stated that he had received such marked relief after operation that he wanted to submit to another if considered advisable.

The outcome in our third case had been most discouraging. No standard technic had thus far been devised for removal of the sternum, and each case reported had presented many obstacles at

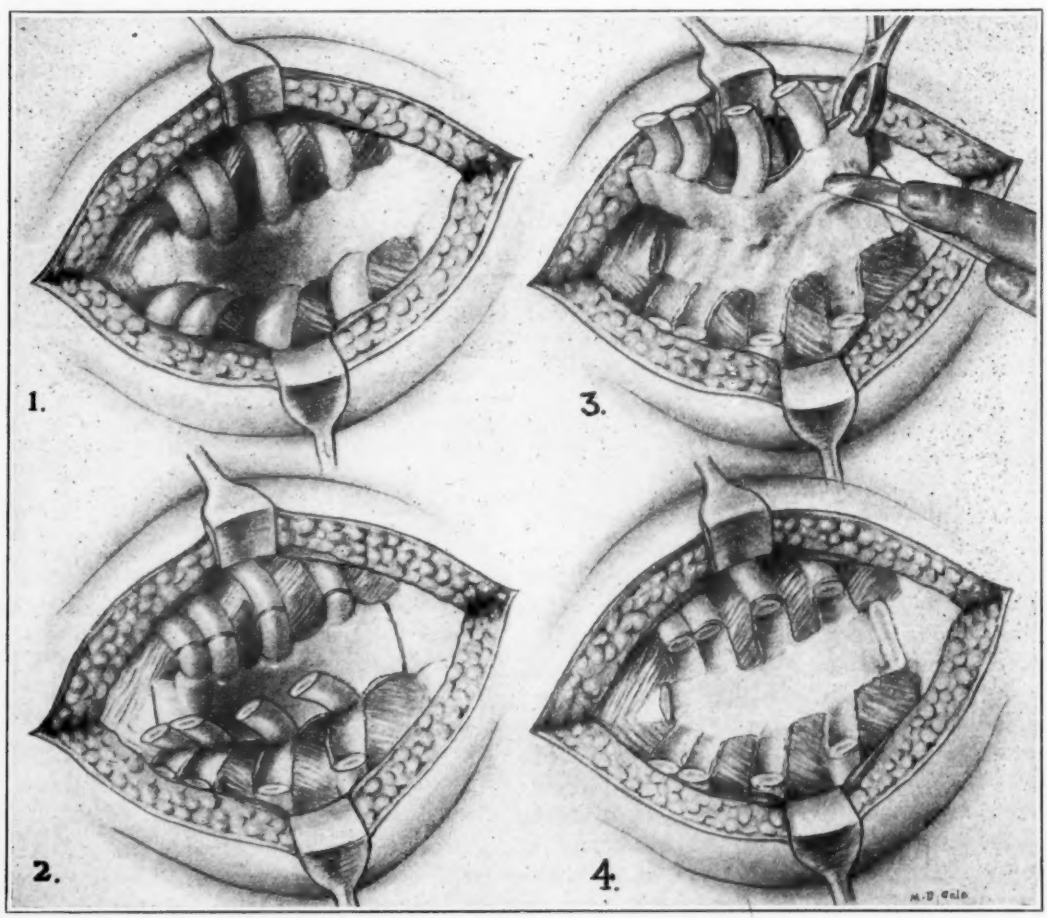

Figure 4.

operation. It seemed imperative, therefore, to evolve a technic which would relieve symptoms permanently, minimize the chances of infection and thus offer a reasonable hope of safety and cure. The method necessary to accomplish this result would entail removal of the sternum and the attached costal cartilages without opening the mediastinum. Since the cause of hemorrhage in the previous case was a suppurative mediastinitis, it was a matter of great importance not to have a repetition of this serious complication. It was therefore decided to attempt a complete subperiosteal excision of the depressed portion of the sternum and costal cartilages. Figure 3*a* shows the vertical incision over the sternum, and Figure 3*b* the amount of bony and cartilaginous portions of the thoracic cage which were resected. These structures were carefully severed without entering the mediastinum or pleural cavities. The periosteum and perichondrium were deflected from the body of the sternum and the costal cartilages respectively, and dissected free.

Figure 4 shows the steps in this procedure. (1) The depressed sternum with the attached costal cartilages is seen in situ. (2) The left costal cartilages have been stripped from the perichondrium. The heavy lines indicate the points of resection on sternum, xiphoid and right costal cartilages. (3) The body of the sternum from the third interspace to the xiphoid process and the attached costal cartilages on the right have been disengaged and elevated. (4) The bony and cartilaginous portions of the thoracic cage have been removed, leaving the periosteum and the perichondrium intact.

The dissection was accomplished without hemorrhage from any large vessel. On its completion there was no communication with the mediastinal space, the periosteum and perichondrium forming an improvised roofing for structures in the mediastinum.

The wound healed by first intention, and the patient made a comparatively comfortable recovery. He left the hospital symptom-free and has remained well since that time.

It is fair to assume that this patient is cured. Thus, from our experience with funnel chest, which has been fraught with disappointment and disaster, we have evolved a simple technic for dealing with a disabling deformity. This technic converts an extremely hazardous procedure into an operation which is relatively simple, rational, safe, and when supplemented by exercises, in all probability, curative.

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Discussion

Dr. James W. Sever, Boston: I was very much interested in part of this paper when it appeared last year in the *New England Journal of Medicine*. I have looked up the literature because last year's report recalled a time many years ago when I was a house officer of Dr. Bradford's at the Children's Hospital. I begged him at that time to let me operate on some of the very badly deformed funnel chests that we saw in the Scoliosis Clinic, with the purpose of devising some means of lifting the sternum. At that time I had no idea of what had been done. As a matter of fact, very little had been done. Dr. Bradford was not willing, as he put it, to sacrifice any child to my enthusiasm. So my efforts stopped there.

There has recently been pronounced interest in this matter, and this work of Dr. Truesdale is at least hopeful, although some of it is discouraging. Apparently if anything is done, the best thing is to resect the lower portion of the sternum — not the manubrium.

We see at the Children's Hospital a great many cases of funnel chest. Most of them are mild. The very bad ones have never been improved by any postural treatment that I know of, and surgery is the only hope. If nothing is done, the result is always a high degree of structural scoliosis, tremendous heart displacement and embarrassment of respiration. So far as I can discover from the literature, some of the deaths that occur shortly after this operation are caused by the sudden twisting of the supporting structures of the heart, which have been displaced for a long period of time.

I wish Dr. Truesdale would say something about the question of opening the pleura, which varies greatly in its attachment to the posterior portion of the gladiolus.

We have had no traumatic cases of depression of the sternum so far as I know, and nothing particular is said in Dr. Truesdale's paper about the cause of severely depressed sternums. The only such case I have ever seen, which perhaps some of you may remember, occurred at a Harvard and Princeton football game many years ago. Holden, the captain of the Harvard team, tackled a Princeton man, whose knee hit Holden on the chest. Holden was carried off the field and taken to the Massachusetts General Hospital. He had a bad fracture of the sternum, and nobody knew what to do. In a sudden reflex coughing spell he coughed the sternum back into place. Perhaps that is a satisfactory method of treatment.

Dr. Frederic J. Cotton, Boston: I have been interested in the few cases of funnel chest that I have seen. I remember the Holden case. I was a house officer at the Massachusetts General when he was brought in. His gladiolus was driven in under the manubrium. I did not wait for an accidental cough, but stretched him over the end of the bed, grabbed his arms and had him cough, and the gladiolus went back into place. The report of that case was my first contribution to surgical literature.

Again, my interest in this condition was sharply aroused because my infant daughter had a pronounced funnel chest. One of her uncles also had a funnel chest, which was rather marked but it never incapacitated him. In my child's case the outlook was not very promising. Respiratory exercises, however, effected an absolute cure.

The third case I have in mind is that of an old nurse who came to me last spring on account of her back

symptoms. She had a funnel chest, but it was not extreme. The back symptoms did not amount to much and cleared up, but she still was quite anemic. I suspected that the lack of respiratory capacity had a good deal to do with it, so I started her on exercises. She carried them through, spent a summer out-of-doors, and turned up in my office the other day with a practically normal chest. She lifted the sternum out by exercises, and I think a good deal can be done in that way.

Dr. George M. Sabin, Burlington, Vermont: I should like to ask Dr. Truesdale about the hemorrhage in these cases — the successful cases.

Dr. Truesdale: There was practically no hemorrhage. By keeping inside the periosteum and perichondrium one escapes the danger of traumatizing the pleura and of cutting the internal mammary artery.

Dr. Frank R. Ober, Boston: There are not so many funnel chests as there were when rickets was a common disease. This condition is known as cobbler's disease. A cobbler frequently developed a funnel chest from his position in repairing shoes and cleaning boots, and yet might live to a ripe old age. The congenital type is relatively common. If you become enthusiastic over this operation of Dr. Truesdale do not do it to the exclusion of all other treatment for funnel chest. At the Children's Hospital we put these patients on hyperextended frames and give them deep-breathing exercises. They respond to such treatment very well. One should employ this method for at least five years and should not wait until the child has arrived at the age when his bones are fixed and solid.

Dr. Elliott C. Cutler, Boston: Considering the physiology of respiration, it appears that removal of the sternum would seriously jeopardize the ability of the lungs to fill adequately. I have observed that following the operation of pericardiectomy, where a part of the sternum and the adjacent ribs on the left side are removed for proper exposure, respiratory efforts reveal a considerable sucking in of the soft parts of the anterior chest wall, with a resultant lowering of the vital capacity. I wish Dr. Truesdale would tell us whether he has made studies of the vital capacity of the boy who survived the procedure he has described. It seems as though the inspiratory effort would cave in the unsupported soft parts and thereby interfere somewhat with respiration. All those interested in thoracic surgery would, I am sure, welcome information on this point.

My other question relates to the possibility of recurrence of the condition. If this is a congenital anomaly, it may be caused by something which increases respiratory effort, such as a tracheal stenosis or a mild bronchial obstruction. If the condition persists, I should suspect that as the periosteum re-formed bone it would still be sucked in by the mechanical difficulty of the primary anomaly, and thus the funnel chest would recur.

What has been said by both Dr. Cotton and Dr. Ober about breathing exercises may well have had a part in the ultimate cure of this boy.

Dr. Truesdale: I am unable to answer the questions bearing upon the patient's vital capacity before and after removal of the sternum. After operation this young man said that he felt as though a very tight belt encircling his chest had been removed, and that he could climb stairs and do many things that he had been unable to do before. It is possible that when there is some bone formation he may again have a retraction of the chest wall. In the meantime, however, he has been prescribed systematic simple exercises and deep breathing. In this way we hope to keep the region of the sternum on a level with the anterior wall of the thorax.

Dr. Cotton and Dr. Sever mentioned snapping out the sternum after it has been depressed by a sudden injury. If these cases are caused by trauma and if they come to the hospital early enough, you can see from what has been said that the deformity can be corrected readily and without difficulty. It is probably true that the funnel chests which we have seen in adults had their origin in childhood from congenital causes such as rachitis. The funnel chest is slight at first, and the depression seldom becomes so marked that the patient cannot work. When it does, as in the cases reported in this paper, surgical intervention is indicated. The cases with spinal curvatures and the congenital types often develop tuberculosis. Intercurrent tuberculosis of the lungs has been reported as a complication in some of the advanced cases, as mentioned by Dr. Sever.

RIGHTS AND LEFTS IN MEDICAL PRACTICE

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PRESIDENT ELIOT was always fond of describing the advances in medicine as prodigious. And while there has been a great lag between the advances in medical science and their application to medical practice, nevertheless these marked advances have, of necessity, resulted in many changes in practice. For centuries, the medical practitioner, despite the buffetings of his social and economic status and despite, too, his variegated relation to scholarship, was a rugged individualist. Clearly Hippocrates conceived him as such and he so emerged at the beginning of the era initiated by the discovery of anesthesia and asepsis.

Your medical practitioner of that day had a purely personal relation with his patient. The hospital was essentially only an asylum for the sick poor. Preventive medicine was unknown. The apprentice method of medical instruction was the common and best method of instruction. Medical schools were largely private ventures. In the Harvard Medical School, for example, the attendance at lectures for two years, attested by punched tickets, sufficed for a degree. The lectures were ordinarily the same lectures repeated yearly. The state, that is, any governmental unit, took little or no interest. As the state began to interest itself in medical practice and established a system of licensure, applicants received a license either by passing an examination or by virtue of years of practice.

A second early step in the communities along the Atlantic seaboard was the evolution of the insane asylum under wretched county control into the mental hospitals under state control. With the consent of most of the interested bodies, the Commonwealth of Massachusetts, for example, began to care for the mentally ill. To be sure, a large factor in this step was the humane and successful treatment of mental invalids at the McLean Hospital, then as now a department of the Massachusetts General Hospital.

Another step was the introduction of the free distribution of vaccine virus in Massachusetts, followed by that of diphtheria antitoxin. The changing argument was interesting. It was successfully argued that if the State adopted compulsory vaccination in the schools, it should furnish the vaccine free. In the case of diphtheria antitoxin, following a tragic attempt in another state to corner for financial gain the available supply of diphtheria antitoxin, the argument was the right and indeed the obligation of the State to protect its citizens from a communicable disease both by treatment and by prevention.

This argument has been pushed to cover all diseases dangerous to the public health, that is, essentially, the communicable diseases. But it is to be noted that mental disease, already a charge of the State, does not come under that category. And soon we find attempts to bring other diseases, usually chronic, under state control, such as cancer, arthritis, and the like. During this time, changes were being rapidly made in other directions, some involving directly or indirectly medical practice. Communities undertook public water systems and public sewerage systems. To be sure, there are still a few private water systems in Massachusetts as well as elsewhere, but they are very few. Many communities, or combinations of communities, undertook public lighting and power systems. Indeed, at this very moment, there is a titanic struggle between the forces of privately owned and publicly owned so-called public utilities. There we see more clearly the opposing fundamental lines of thought. The advocates and opponents of public ownership of such public utilities as light, power, telephone and railroads find, relatively speaking, a line of cleavage. And yet the mails are government owned and operated, and in England the radio, so far as broadcasting is concerned, is a governmental business.

Without going farther into details, one may pass to the subject of education. It has been accepted that education is an obligation upon the government and we see the natural and inevitable effect of pushing this to the so-called logical conclusion.

Great state universities have sprung up all over this country and with them have come state university medical schools, research departments and hospitals. Such has been the impetus that President Conant was moved to discuss whether the privately endowed university had a place in the modern trend of educational affairs.

There is neither need nor time to discuss the changing trend of the hospital — its change from an asylum for sick poor to an elaborate institution for the treatment of the sick both rich and poor.

In this prodigious progress, the medical practitioner is bewildered. He no longer finds himself a rugged individualist with the old intimate relation of doctor and patient. He finds the much despised boards of health of yesteryear aggressively

Read at the Harvard Medical School Colloquium, December 2, 1937.

interested in his cases of measles, pneumonia, cancer and arthritis. He finds the hospitals in active financial competition with him. Sometimes, when his altruism impels him to send his patient to a hospital, irrespective of whether or not he takes care of the patient there, the hospital charges, when paid, preclude recompense for the doctor. Not infrequently the patient has a parent or relative, or perhaps a friend, who pays for the hospital room, and another who pays for special nurses, but the doctor must be paid, if at all, by the patient who neglected to budget for illness.

He sees the veterans' hospitals increasing in size and numbers, and he sees each Congress relaxing the restrictions on the use of these hospitals. He is most definitely unhappy about the operation of accident insurance and of the various industrial boards. To increase his confusion all sorts of panaceas are offered him — general health insurance in many forms, co-operatives, group medicine, and the like. To him it seems as if the old traditions of medicine, the rugged individualism of the doctor, and the opportunity of earnest, strenuous effort on the part of any single physician were all cast overboard. He is oppressed by the mass-production note on all sides.

As he thinks, he gropes for some solution. To some of the doctors, the idea of the totalitarian state no longer seems absolutely theoretical and crazy. Does not each year find an increasing number of doctors employed by the town, the county, the state and the federal government? Certainly, there is no indignity attached to a position on the local board of health or to a paid position in the local hospital, in one of the state hospitals, in the State Department of Public Health, in the United States Public Health Service or in one of the government hospitals in the Veterans' Bureau. Certainly many notable figures in medicine are employed in the great state medical schools and hospitals. He knows really that economic pressure is a very vital factor that often furnishes the motive power for changes. And, so, ordinarily, the fundamental and philosophic conception is largely disregarded even as it was largely disregarded by those instrumental in bringing about these changes. The word security, social or financial, has a great psychologic effect.

Inasmuch as this is a selfish world and most motives are selfish, your medical practitioner acts selfishly, like anybody else. If his practice is mostly among the poor, he may like to consider how some governmental unit will pay for his professional visits to the sick poor. Naturally, he wants as little governmental control or interference as possible. (Is this very different from the old reiterated expression of the big business men?)

Some practitioners of medicine, however, would go the whole distance — the complete totalitarian state — so far as medicine is concerned. These, I think, we can safely call the Lefts. But what of the practitioners who only want pay from some public purse for each of their professional services? And what of the practitioners who only want open hospitals, whether private, community, state or federal, and payment for each separate professional service?

Of course, there are always troublesome details. Many communities are now in economic distress because of their relief programs which may or may not include expenditures for medical services. And what of this new term "medically indigent" and how far can public funds be extended to pay for professional services for those who use their income for clothes, automobiles, radios and liquor? And what of hospitals, hospital salaries, medical schools and medical research? Shall we give up our privately endowed universities and hospitals? How irksome would be the supervision of the expenditure of public funds under these conditions? Probably only the out-and-out believers in the totalitarian state would want all medicine controlled by some governmental unit.

Doubtless, the great state universities have had a very beneficial effect on those privately endowed, and by the same token the privately endowed universities have had and will continue to have, I believe, a beneficial effect on those of the state. Personally, I cannot accept the pessimistic utterances of President Angell of Yale at the Harvard Tercentenary in 1936 when he solemnly declared that the trend of greatly increased taxation incident on these and other changes would probably close the privately endowed universities.

We can easily define the Lefts in medical practice as those who have been led to believe as they do either through conviction or from what they think is pressure to avoid destruction. But what of the Rights? Who are they? The exigencies of the situation do not permit the existence of the rugged individualism of practice of the earlier days. And most thinking persons accept and endorse much of the activity in medical practice by various governmental units. Some, indeed perhaps many, of these look askance at such activities as veterans' hospitals with the gradual loosening of the earlier restrictions.

A considerable group, no one knows how large, feels that while each step may be superficially justifiable, nevertheless, the trend taken with similar trends in other fields is now overdone. Are health and education different from crops, clothing and other necessities of life? Should one believe in governmental control of products and not of health? Of course, logic is impossible, and pol-

itics makes strange bedfellows, for example the union of the prohibitionists and the bootleggers.

But, shall we say that the Rights are those who believe that the advances in medical practice which result in governmental control by the use of public funds are proceeding at too fast a pace? Certainly, as I see it, the pace is terrific. All along the lines there seems to me to be too great wastage. But three most important considerations stand out in my mind. I believe that medical tradition has value. I believe that medicine has just barely become a science, and dread the effect of projecting this new science entirely into the seething furnace of politics. Will the prodigious advances continue then? Lastly, I believe that in many instances of seeming emergency, in which governmental aid is involved, an ardent individual enterprise, determination and aggressiveness will frequently accomplish something that pessimistic inactivity never will. And this applies to private hospitals and privately endowed medical schools.

As you gather, I am decidedly on the Right in this question. Perhaps it is because I am a Fellow of Harvard College, a privately endowed body, or because I am a Trustee of the American Medical Association, or because I served for a number of years on the Massachusetts State Board of Health, or am on the Advisory Committee of the United States Public Health Service. But, consistency is a certain virtue of small minds.

264 Beacon Street.

THE TREATMENT OF THE VOMITING OF EARLY PREGNANCY

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BOSTON

NAUSEA and occasional vomiting of two or three weeks' duration are so common in early pregnancy as to appear almost physiologic in origin. They occur to some degree in approximately half of all pregnancies. Their frequency and duration vary greatly in individuals, as well as in different pregnancies in the same individual. But if the vomiting is of such frequency and persistence that it materially interferes with fluid balance, acid-base equilibrium or other phases of nutrition, it is potentially dangerous and must be regarded as abnormal. When the disturbance is as severe as this, it is commonly referred to as hyperemesis gravidarum, or pernicious vomiting.

The incidence of such abnormal vomiting at the Boston Lying-in Hospital is approximately 1 for each 150 deliveries. More than half these cases, however, have been referred by private physicians or other hospitals for treatment, so that the true incidence is nearer 1 in 400 deliveries. Our remarks will be confined largely to the treatment of the excessive or abnormal vomiting of pregnancy as defined above.

ETIOLOGY

The cause of the disease is unknown. In the recent literature two important trends of thought have been expressed. First, it has been contended that response to a specific form of therapy points to a specific etiologic agent.[1, 2] Needless to say, most of the glands of internal secretion, and particularly those intimately associated with reproduction, have been thought to perform their functions either inadequately or too well. As might be expected, many forms of endocrine therapy have been used, and have for the most part been credited with good results. It is fair to state, nevertheless, that these preparations are usually employed in conjunction with other therapeutic measures. Also, many forms of treatment without endocrine preparations are attended with reasonable success except in an occasional patient. Indeed, in the vast majority of cases successful therapy in hyperemesis gravidarum is, it seems, more nearly correlated with the degree of conviction under which it is prescribed than with the specific therapeutic measures involved. Secondly, there has been a trend to the study of the secondary nutritional and metabolic alterations which result from vomiting.[3, 4, 5] These disturbances are the results of loss of body fluid and sodium chloride, associated with varying degrees of carbohydrate, protein, mineral and vitamin deficiencies. The pathological findings in fatal cases demonstrate the importance of many of these resultant nutritional disturbances. The common lesions at autopsy may be reproduced in starvation experiments.

During the past four years at the Boston Lying-in Hospital, the treatment of vomiting of pregnancy has been directed primarily at the correction of each of these nutritional disturbances which accompany and often aggravate the disease.

It is our belief that indiscriminate use of the term "neurotic vomiting" has been productive of

Read at the combined clinical meeting at the annual meeting of the Massachusetts Medical Society, Boston, June 2, 1937.

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some confusion and harm. To be sure, psychic disturbances are among the most important of a large group of extrinsic factors which aggravate the disease. However, there can be no doubt that many physicians have been prone to dismiss vomiting of pregnancy as a neurotic disturbance, without adequate treatment. We must emphasize that each patient with hyperemesis, if treatment is neglected, has a potentially dangerous or even fatal disease.

LABORATORY FINDINGS

Most important of the laboratory procedures is examination of the urine. Except in mild cases it should be examined twice a day until the disease is under control. The volume and specific gravity should be determined, tests should be made for acetone, diacetic acid, albumin, sugar and bile, and the sediment should be examined.

Blood samples taken for study when the patient is markedly dehydrated must be interpreted with this fact in mind. Abnormally high hemoglobin values and red-blood-cell counts may be due to blood concentration. Similarly, the nitrogenous constituents of the blood are many times found to be elevated. The latter usually return to normal values promptly when fluid and sodium-chloride balances have been restored, while re-examination for hemoglobin and the red blood cells often reveals a relatively severe microcytic, hypochromic anemia which had been masked by blood concentration. Marked decrease in the carbon-dioxide combining power of the blood in many instances precedes a fatal outcome; yet, death may occur in patients with normal or even elevated values.

CLASSIFICATION

There are two interrelated variables in this disease: the *severity* and the *duration* of the vomiting. In order to formulate the best treatment for each individual case, both variables must be considered. Consequently, the cases have been classified as follows:

Vomiting of early pregnancy.
- Mild (morning sickness); no significant interference with nutrition.
- Moderately severe; duration from 1 to 4 weeks.
- Severe and neglected; duration over 4 weeks.

Vomiting of late pregnancy. We do not believe that this is the same disease as that occurring early. It is often associated with severe pre-eclampsia, intestinal obstruction, abdominal inflammatory disease or lesions of the liver.

TREATMENT

Vomiting of Early Pregnancy.

The treatment of the vomiting of early pregnancy may be either medical or surgical. We feel that both forms possess definite limitations. In general, the management may be outlined as follows:

Mild cases are characterized by considerable nausea and only occasional vomiting. In many instances there is only morning sickness, while in others the nausea and vomiting occur in the afternoon, or only with excitement or fatigue. The majority of patients never get beyond this stage, and there is no significant disturbance of nutrition. The treatment is medical, the most important measures being:

1. Frequent small feedings of any type of food which appeals to the patient. A high-carbohydrate, well-balanced diet is encouraged, and fatty, fried or indigestible foods are eliminated.
2. Avoidance or correction of constipation, with use of mild cathartics and enemas when necessary.
3. Removal of environmental factors which might aggravate the condition.
4. Rest, avoidance of excitement and fatigue, and sedatives when indicated.

Moderately severe cases are characterized by marked persistent nausea and vomiting with retention of very little or no food or fluid of from one to four weeks' duration. These patients show a loss in weight, dehydration, ketonuria and a beginning increase in pulse rate, and occasionally a small amount of bile in the urine. Nearly all are markedly constipated, and many show slight temperature elevation, which rarely exceeds 100°F. Occasionally there are one or more signs of beginning mental and neurologic lesions, such as defective memory, drowsiness, irrationality, nystagmus, decreased or absent tendon reflexes, atrophy and weakness of the muscles of the extremities, — particularly the extensors, — loss of sphincter control and sensory skin changes. We have included in this group only patients in whom the duration of the vomiting was four weeks or less, since clinically this appears to be a good dividing line between the moderately severe cases and those which are likely to be gravely ill. The management of such cases may be outlined as follows:

1. The patient must be hospitalized, and complete physical and neurologic examinations must be performed.
2. Treatment of the hyperirritable nervous system and the psyche is begun.
   a. The patient is isolated from all friends and relatives as well as from oversolicitous attendants.
   b. Measures are taken for the adjustment of mental problems which seem to be contributory factors, that is, illegitimacy, determination to be aborted or problems concerning husband and family.
   c. Sedatives are given in sufficient quantity to cause cessation of vomiting and at first to induce sleep. Later, the doses are diminished. Phenobarbital, bromides and pentobarbital are preferred. It is usually preferable to give the medication by rectum following an enema. From 3 to 9 gr. of pentobarbital are ordinarily required for proper control.

3. The ever-present constipation is corrected by the use of enemas until the lower bowel is empty, and insistence upon either one bowel movement daily thereafter or repetition of the enema.
4. Fluid and sodium-chloride balance are restored, and acidosis is corrected.
   a. An initial hypodermoclysis of 1500 cc. of normal saline is given, followed by sufficient amounts daily to achieve and maintain fluid balance until the patient is retaining food and fluid by mouth.
   b. An intravenous infusion of 5 or 10 per cent glucose solution is administered by constant drip at a rate of from 30 to 40 drops per minute in sufficient amount to keep the urine relatively free from ketone bodies. This should be repeated at intervals of from 8 to 12 hours until the patient is retaining sufficient carbohydrates by mouth. If given slowly by constant drip, from 1000 to 1500 cc. or even more is well tolerated every 24 hours. After the fluid balance has been restored, the total fluid intake in glucose solution intravenously and saline by clysis should not exceed 3000 to 3500 cc. in 24 hours.
5. Control of the starvation and resultant change. As vomiting persists, additional nutritional deficiencies in protein, minerals and vitamins come to play increasingly important roles in the pathology of the disease. With this in mind in each case, the duration and severity of the vomiting are considered, the dietary history is surveyed, and signs of vitamin deficiencies are sought. A well-balanced diet is provided with such supplementary vitamin concentrates as seem advisable. If the patient has reacted well to 12 or 24 hours' rest, with parenteral fluids and sedatives, such a diet in small amounts and in the form of liquids is offered at hourly intervals by mouth. If there is still nausea, or if food taken by mouth is vomited, a generous dose of sedative is given by rectum, and one hour later a duodenal tube is passed through the nose. When this has been done, feedings of liquid diet are given at hourly intervals by drip at body temperature. We often begin with orange juice sweetened with corn syrup, milk, and eggnog (4 oz.) in succession at hourly intervals. A heaping teaspoonful of brewer-yeast concentrate is added to each milk feeding. If dietary history and study of the patient so indicate, larger amounts of vitamin B_1, ascorbic acid and liver extract administered intramuscularly are given. There is, occasionally, regurgitation of part of the feedings during the first 24 hours. This should not cause great concern, nor is it of much importance whether or not the tube has entered the duodenum, for excellent results are usually obtained when it rests in the stomach. The tube is left in place for 12 hours, and moderate doses of sedatives are administered through it at approximately 6-hour intervals. This method of feeding is continued for from 3 days to a week or more with gradually diminishing amounts of sedatives, following which the patient is given a well-balanced diet of high-vitamin content by mouth. When vomiting has ceased for 1 week and the pulse rate is well below 100, the patient is allowed to be up and about. On discharge, she is instructed concerning a well-balanced diet, rest, and proper control of the bowels. Brewer's yeast, small doses of sedatives and iron are continued for a considerable time.

Response to this treatment may be briefly exemplified by the following case history:

Case 1. D. A., a primipara, aged 23, entered the hospital in the 6th week of pregnancy. Vomiting had begun 11 days before admission; only small amounts of fluid had been retained. There was a history of a 10 lb. loss in weight and marked constipation. The essential positive findings were signs of dehydration, a pulse rate of 88 to 110 and 3+ acetone and 2+ diacetic acid tests in the urine. The patient was treated as outlined. The acidosis was promptly controlled, and vomiting ceased during the first 24 hours after admission.

This patient's moderately severe vomiting responded ideally to the treatment. Although a large majority of such cases respond promptly to the treatment described, there is an occasional exception, and we believe that therapeutic abortion has its place in the proper treatment of this disease.

Should the patient continue to vomit in spite of a fair trial of four or more days of treatment as outlined, abortion should be considered. This is particularly true if the patient's pulse increases to a sustained rate of 110 or 120 beats per minute, if bile appears in the urine or clinical jaundice develops or finally if any one of the neurologic signs previously discussed appears. Such a course may be illustrated by the following clinical history:

Case 2. M. S. was a primipara of 28 in the 12th week of pregnancy who entered the hospital for severe vomiting of 4 weeks' duration. The positive findings were incessant emesis with vomitus tinted with blood, tingling of hands and feet for 1 week, a pulse rate of 80 to 110 and marked dehydration and ketonuria. The patient failed to respond to treatment, and incessant vomiting continued in spite of attempted tube feedings. She was then given large doses, first of estrin and later of suprarenal cortex extract, but with no improvement. Finally, catheters were inserted into both ureters as suggested by Hayes.[6] The patient failed to improve in spite of all treatment. The pulse rate continued to increase steadily and rose to 160. Therapeutic abortion was performed vaginally on the 7th day after admission. On the 2nd and 3rd postoperative days the patient developed a mild psychotic state, which was transient. She was discharged 8 days later with a pulse rate of 90 and no complaints.

It should be emphasized that the condition of this patient was rapidly becoming desperate, and that all methods of medical treatment, including endocrine therapy, were failing. In retrospect, it seems that it would have been better to resort to therapeutic abortion forty-eight to seventy-two hours earlier.

Severe or neglected cases are characterized by continuous vomiting, usually of more than four weeks' duration, with marked to extreme loss in weight, dehydration and acidosis. The pulse is accelerated, and the rate is usually above 120. Jaundice may be present. Bleeding, spongy gums are a frequent finding; other signs suggestive of scurvy, such as hematuria and muscle and periosteal pain, may be encountered. Hemorrhages of the ocular fundi are occasionally found. The neurologic signs and symptoms may be well established. Men-

tal symptoms such as confusion, irrationality and hallucinations may appear. Nystagmus, diminished or absent tendon reflexes, marked wasting of the extremities, extensor paralysis, sphincter incontinence and sensory changes may be observed. The concentrated urine, in addition to ketone bodies, may show bile and albumin, as well as casts and blood in the sediment.

These patients present desperate problems. The mortality is probably well above 25 per cent, and past experience indicates that any surgical procedure adds materially to the risk. Immediate therapeutic abortion may well increase rather than decrease the mortality. Fortunately, in many patients who have progressed to this state the vomiting has diminished in intensity or has ceased, so that with the aid of the duodenal tube they may be fed. This is particularly true of patients who have developed polyneuritis.

With realization of the extremely high mortality which had attended immediate therapeutic abortion in this group, we decided four years ago to adopt a more conservative policy. A number of these cases have been treated in the manner described above for the moderately severe ones, with particular emphasis on prolonged tube feedings of a diet rich in protein, carbohydrate and vitamins, supplemented by concentrated sources of vitamins B_1, C and G in the form of brewer-yeast concentrate, ascorbic acid and liver extract given intramuscularly. Improvement has been marked and none of the patients have died, although in 2 with marked polyneuritis no significant neurologic improvement occurred until after the pregnancy had terminated. This point is well illustrated by the following case history:

Case 3. A. S. was a secundipara, aged 30, who was admitted in the 19th week of her pregnancy. Severe vomiting had resisted home therapy for 12 weeks, but 4 weeks before admission it had nearly ceased and an intractable diarrhea had begun. Since that time there had been complete paralysis of the lower extremities and marked weakness of the hands. The patient had lost 50 lb. in weight. The positive findings were anorexia, a sustained pulse rate at rest of 120 to 130, marked wasting of the muscles of the lower extremities, with absent deep-tendon reflexes and bilateral foot drop. The patient was slightly euphoric, and there was incontinence of both urine and feces. The urine showed a 4+ test for acetone. The blood showed moderate anemia, but the carbon-dioxide combining power was normal. This patient was treated as outlined. She was kept in the hospital for 4½ weeks. The diarrhea promptly subsided, the appetite improved, there was a gain in weight, and the pulse rate decreased slightly. The patient continued with complete bed rest at home, and in addition to a high-vitamin diet took large doses of brewer-yeast concentrate until delivery 4 months later. In spite of these measures, the neurologic signs and symptoms did not improve significantly. Following delivery neurologic improvement was dramatic, and 6 weeks postpartum the patient was able to walk about the house.*

It is our feeling that in this type of case immediate therapeutic abortion is contraindicated. Ideally, we believe these patients should be fed a diet high in protein, carbohydrate and vitamins, with supplementary sources of vitamins, for at least two weeks before interruption of the pregnancy is considered.

The uterus should be emptied with the least possible trauma. If the cervix is firm, a small gauze pack should be inserted and left in for twenty-four hours. This results in a softening of the cervix, which will make subsequent dilatation and curettage easy. If the pregnancy has entered the second trimester, it is usually best terminated by vaginal hysterotomy. The added shock of abdominal hysterotomy appears to make this procedure undesirable.

The choice of anesthesia is important. Avertin should not be used. Morphine or the barbiturates may be used for preliminary medication. Inhalation anesthesia is to be avoided if possible, particularly chloroform and ether. Cyclopropane or ethylene is suitable. Sacral block with novocain, or on occasion, low-spinal anesthesia, is to be preferred.

Vomiting of Late Pregnancy.

This is considered by many as a separate disease. Certainly it is often associated with pre-eclampsia, liver lesions or acute abdominal lesions. It is the feeling of obstetricians of long experience, however, that vomiting of late pregnancy from whatever cause is poorly tolerated. In the absence of demonstrable abdominal disease or pre-eclampsia, a short trial of medical treatment as previously outlined is permissible. However, if vomiting persists induction of labor should be considered.

RESULTS

Prior to 1934, patients with vomiting in early pregnancy were treated with a regime of which the essentials were isolation, no demonstration of sympathy, large amounts of parenteral saline and glucose (up to 6000 cc. in twenty-four hours), rectal taps with sedatives and feedings by mouth consisting of 8-ounce quantities of milk, malted milk and water in succession at hourly intervals. The strict hourly feeding schedule was maintained, and if significant vomiting recurred, all food was discontinued until vomiting had ceased for twenty-four hours, when feedings were resumed. If the vomiting could not be controlled after reasonable

*Recent preparations of crystalline vitamin B_1 have been made available for parenteral clinical use. It may be that very large doses of this substance would have a more decided influence upon the polyneuritis which complicates prolonged vomiting than do preparations fed by mouth.

trial on this regime, therapeutic abortion was performed; in severe and desperate cases, it was usually done as soon as fluid balance had been restored by parenteral fluids.

Table 1. *The Results from the Treatment of Moderately Severe and Severe Cases of Vomiting of Pregnancy at the Boston Lying-in Hospital.*

	1930-1933	1934-1937
Number of deliveries	12,675	14,600
Number of vomiting cases	85	91
Incidence	0.68%	0.62%
Cases treated without therapeutic abortion	65	86
Deaths	4	0
Mortality	6%	0%
Cases treated with therapeutic abortion	13	3
Deaths	3	0
Mortality	23%	0%
Cases discharged against advice	7	2

Since 1933 the regime here outlined has been substituted. The results, in the moderately severe and severe cases, compared with the previous four-year period, are given in Table 1.

CONCLUSIONS

1. The cause of the vomiting of early pregnancy is unknown.

2. The pathologic lesions are those of starvation, resulting from sustained loss of body fluids, proteins, minerals, chlorides, carbohydrates and vitamins.

3. An arbitrary classification on the basis of the severity of the disease has been presented, and an attempt has been made to outline what appears to be the most satisfactory treatment for each group. A medical regime which has resulted in few failures has been suggested.

4. Therapeutic abortion is a life-saving procedure in early cases which fail to respond to a thorough trial of medical treatment. Clinical signs and symptoms indicative of such failure are emphasized.

5. In contrast to previous views on the use of therapeutic abortion in cases of neglected and long-established vomiting (severe type), we believe that immediate abortion is not indicated, but is best postponed for two weeks or more until medical treatment has restored the patient to a proper state of nutrition. If after this preliminary preparation therapeutic abortion is still to be considered, because of persistent polyneuritis, it may be much more safely performed.

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LOW-THIGH AMPUTATION

Technic Employed in Elderly Patients, Particularly Those with Advanced Peripheral Vascular Disease or Diabetic Gangrene

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BOSTON

AMPUTATION of an extremity is performed for one of two purposes—to save life or to improve function. In older patients, particularly those who exhibit advanced peripheral vascular disease, or diabetic gangrene of the lower leg and foot, amputation frequently has to be considered, and the operation when carried out is done primarily to save life. Either because the change in the peripheral vessels is such that circulation cannot be sufficiently improved to save the part, or because diabetic gangrene, especially on account of a deficient circulation, makes it impossible to control the infection, the radical procedure of amputation is indicated.

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The decision for or against amputation is often an extremely difficult one. Each patient presents a distinct problem. Consultation with the medical and the surgical services is always obtained, so that the patient has the benefit of three or more independent opinions.

The present paper is based upon a group of 38 elderly patients who, between January, 1932, and January, 1937, submitted to low-thigh amputation. The type of lesion for which they were operated upon is shown in Table 1. Exclusive of the fourth group (patients with thromboangiitis obliterans), the youngest patient was fifty years old, the eldest was seventy-nine and the average age was sixty-two. In the fourth group the average age was forty-two. Incidentally, all the patients in this group

had had prolonged medical treatment as well as lumbar ganglionectomy up to two years previous to amputation. It will be noted that patients suffering from arteriosclerotic gangrene form the largest single classification. In the entire series there was 1 death due to sudden rupture of an aneurysm of the abdominal aorta two months after amputation.

A discussion of the various levels of amputation is not indicated here, except to point out that

Table 1. *Reasons for Amputation.*

DIAGNOSIS		NUMBER OF PATIENTS	DEATHS DUE TO OPERATION
Arteriosclerotic gangrene		12	0
Diabetic gangrene and arteriosclerosis		9	1
Diabetic gangrene		6	0
Thromboangiitis obliterans		3	0
Neoplasm		4	0
Miscellaneous		4	
Tuberculous knee joint	2		
Pathologic fracture	1		
Traumatic thrombosis of tibial vessels	1		
Total		38	1

amputation below the knee is rarely to be considered in older patients with diabetic gangrene of the lower leg and foot, unhealed lesions of the foot due to inadequate circulation, or a combination of these two conditions. Furthermore, after amputation through the lower extremity in older patients there is concern about future function, especially in the younger ones. The use of an artificial limb is always trying for older people. Nevertheless, with the most important aid of an expert maker of artificial limbs, we were successful in fitting 37 patients in this series with a prothesis which functioned — a difficult but well worth-while task.

Having decided upon a thigh amputation for a case in this group, selection of the type of operation lies essentially between a Gritti-Stokes procedure and amputation through the lower thigh. For these patients, particularly in the presence of deficient circulation or diabetic gangrene, we believe that the latter procedure is preferable, for these reasons:

1. It is simpler and safer.
2. There is consistent primary union.
3. Weight can be borne on the end of the stump as a result of suturing the heavy quadriceps tendon over the femoral shaft to the posterior deep fascia (Kirk).
4. Osteogenesis (patella to femur) is not required.
5. The resulting stump affords excellent leverage for a prothesis.

Low-thigh amputation as here reported means division of the distal femur through the expending bone shaft 3 to 5 cm. above the proximal cartilaginous margin on the anterior femoral surface. Since this group of relatively old patients has reacted so favorably to the operation, we shall describe the details of the procedure, which is the method now employed in the Lahey Clinic.

A proximal tourniquet is not applied, since any degree of obstruction to circulation may delay healing and because with the technic described very little blood is lost. Every attempt is made to drain the leg of blood by elevating the extremity, beginning with the time the patient is placed on the operating table. In the *absence* of infection this step is supplemented by a progressively tight elastic bandage on the foot and lower leg as far up as the knee. This bandage squeezes nearly all the blood out of the lower half of the leg. In the *presence* of severe lower leg infection a tourniquet is applied very tightly just below the knee.

The operation is performed with the patient lying supine, while an assistant holds the extremity flexed at the hip to a right angle, the knee extended (Fig. 1). This position offers ready

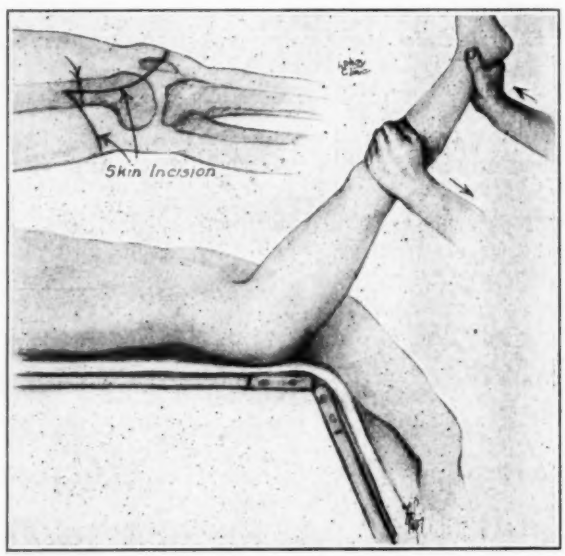

Figure 1. *Illustrating the position in which the leg is held for amputation. The advantages are facility of approach to the operative field as well as drainage of blood from the extremity. The insert shows line of incision.*

access to the site of the incision and greatly facilitates the entire procedure.

The incision for the anterior skin flap passes through the mid-patellar region, while the posterior flap is outlined slightly proximal to this level (Fig. 1). The use of flaps is preferred to the guillotine type of incision because with them there is a neater-appearing stump and it is easier to cuff back the soft parts for exposure of the bone. After the saphenous vein has been clamped and cut, the deep fascia on the posterior aspect of the thigh is

divided in the line of incision about 1 cm. distal to the skin edges, as described by Kirk.

The mesial hamstring muscles and tendons are next divided; through blunt dissection in the popliteal space it is then easy to recognize, isolate, clamp and cut the popliteal vessels and nerves (Fig. 2). With an amputation knife the remaining soft tissues are quickly severed. Comparatively slight bleeding results. The synovial membrane lining the suprapatella pouch is then cut away. Gentle

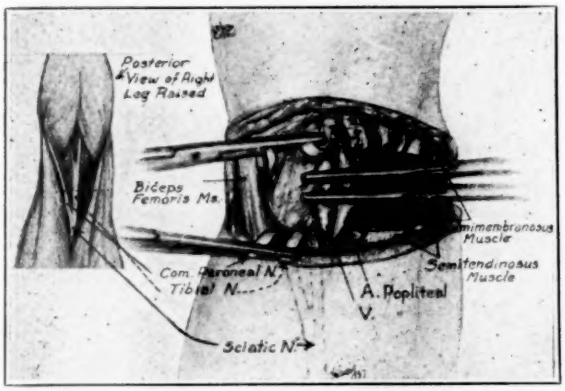

Figure 2. *Following division of the medial hamstring muscles, blunt dissection in the popliteal space permits easy recognition, clamping and cutting of the popliteal nerve and vessels. As described in the text, the saphenous vein is similarly clamped. With this technic a tourniquet is unnecessary. The insert shows the anatomy of the popliteal space, as seen at operation, the hip flexed to 90° and the knee joint extended.*

traction is applied to the sciatic nerve trunk, which is then divided with cautery, as suggested by McKittrick. This technic is distinctly preferable to the use of ligatures and to nerve injection with absolute alcohol.

After exposure of the femoral shaft the periosteum is stripped from the bone toward the knee with a broad, sharp elevator, beginning 1 cm. above the selected point of bone division — the aperiosteal type of amputation. Then the shaft of the femur is cut through, and the resulting sharp bone edge is beveled off with a rasp. The popliteal vessels are ligated twice with heavy silk.

Following low-thigh amputation, the femoral shaft tends to be displaced to the lateral side of the stump. For successful function of the prothesis it is most important to prevent such a displacement. This is simply accomplished by holding the femur in the mid-thigh position, and then passing anteroposterior silk ligatures through the muscles close to the bone on the medial and lateral aspects of the femur; this creates a muscular tunnel which incloses the shaft of the femur and prevents displacement to either side of the stump (Fig. 3).

The anatomic relation of the soft parts to the femur is now considered, and the key points for approximation of the skin edges are identified by clamps applied to the subcutaneous tissue. A careful survey is made for all bleeding points, which are clamped and cauterized. The larger superficial vessels, such as the saphenous veins, are tied with plain catgut. The quadriceps tendon is then sutured with chromic catgut to the posterior deep fascia at the midline so that the tendon lies directly over the bone end. This heavy tendon provides a most satisfactory coverage of the bone and permits weight-bearing on the end of the stump.

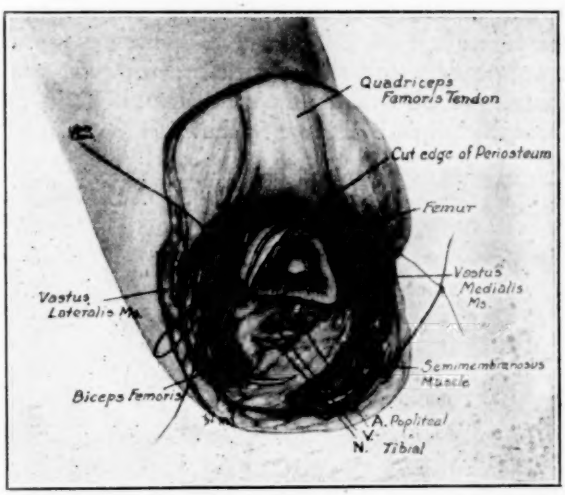

Figure 3. *Prevention of lateral displacement of the femoral shaft, by means of anteroposterior silk sutures deeply placed in the muscle mass on either side of the bone, thus creating a muscular tunnel which encloses and holds the femur in midline of the thigh.*

Note that the distal centimeter of the femoral shaft is completely denuded of periosteum; also that the femur here is of a triangular shape, since it was divided, as described in the text, a few centimeters proximal to the cartilaginous margin on the anterior femoral surface. The next step in closure of the wound is suture of the quadriceps tendon to the midline posterior deep fascia, thus covering the end of the bone with this tendon.

Thereafter, the subcutaneous tissue and finally the skin are closed with interrupted sutures, the former with catgut and the latter with silk. Continuous sutures are not favored, as with their use an unnecessary amount of suture material remains in the wound.

Drains are not employed except in the presence of severe leg infection or in the rare instances of excessive oozing from the cut surfaces of the stump, sometimes seen in pronounced secondary anemia. In the majority of these amputations drainage is not necessary; in fact it is definitely contraindicated, as drains tend to create a sinus tract.

Following closure of the wound, a large, loose gauze dressing is applied and the entire stump is snugly covered with sheet wadding, followed by

an Ace or Bender bandage. Dressings are renewed when indicated, but the bandage is continuously applied during the first two weeks, as by this maneuver the stump is more rapidly shaped and accumulation of serum is prevented. The use of this type of support is a valuable aid in rapid mobilization of the patient, and makes possible earlier application of the prothesis. Care is also exercised to maintain the stump in the position of complete extension at the hip joint for progressively longer intervals each day, in order to prevent hip-flexion deformity.

The next step is that of fitting the pylon, a temporary appliance designed to shape the stump more rapidly for the eventual permanent prothesis, and also to hasten the patient's discharge from the hospital. Figure 5*a* shows the wearing of

Figure 4. *Postoperative photograph illustrating the length of the thigh stump as compared with the non-operated leg. The patient walks well with a pylon (Fig. 5b).*

this pylon. It means less immediate expense to the patient, and in the hands of an expert artificial limb maker permits necessary adjustments during the ensuing months until the patient can be fitted with a permanent artificial leg. This pylon has the further advantage that if the patient cannot afford an artificial leg he can continue to walk with the pylon most satisfactorily. As a rule, the pylon is applied and the patient starts weight-bearing thereon by the end of the second postoperative week, occasionally in seven to ten days. The pylon is worn three months, or until no further shrinkage of the stump occurs. A permanent prothesis can then be measured and fitted.

SUMMARY

A technic employed for low-thigh amputation is described. By this term is understood division of the distal femur a few centimeters above the proximal cartilaginous margin on the anterior femoral surface.

This type of low-thigh amputation is preferred to the Gritti-Stokes operation when treating old patients, particularly those individuals with advanced peripheral vascular disease or diabetic gangrene of the lower leg and foot. The procedure is simpler and safer; there is consistent primary union; weight can be borne on the end of the stump; osteogenesis — patella to femur — is not required; and finally the resulting stump affords excellent leverage for a prothesis.

Thirty-eight amputations have been performed, with 1 death two months after operation, due to rupture of an aneurysm of the abdominal aorta.

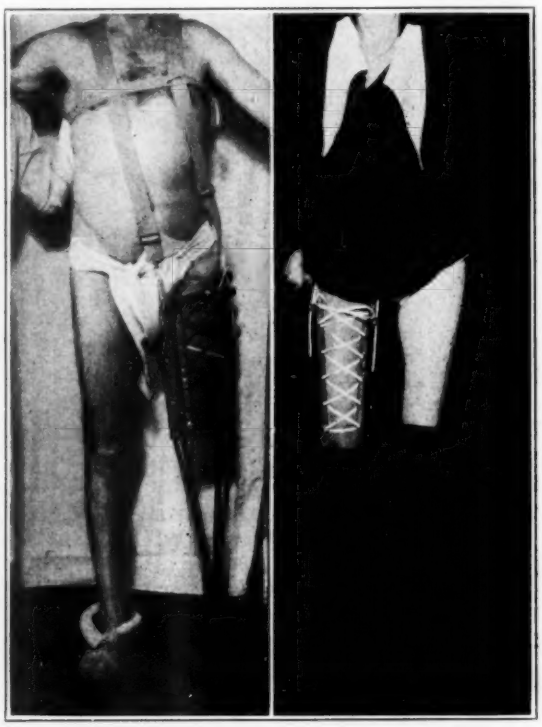

Figure 5. *a. Photograph of a patient fitted with a pylon, showing details of this prothesis.*

b. Similar photograph (compare with Fig. 4).

The pylon is applied between the tenth and the fourteenth postoperative days. It is a temporary prothesis designed to shape the stump rapidly for fitting with the permanent artificial leg, and permits the patient's discharge from the hospital.

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INTRAVENOUS EVIPAL—SODIUM ANESTHESIA IN UROLOGIC SURGERY

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BOSTON

EVIPAL SODIUM was first used as an intravenous anesthetic at the Peter Bent Brigham Hospital in 1934. At that time it was felt that though the pharmacology of this new anesthetic had been inadequately studied,[1] the extensive experiences of German and British investigators justified its clinical trial. In a previous communication[2] our experience with 300 cases was reported. The importance of individualization in the use of evipal sodium was emphasized. Certain indications and contraindications were discussed and a technic of administration which had proved safe and practical was outlined.

In the present paper, particular attention is given to the applicability of evipal anesthesia to urologic practice. No branch of surgery more frequently requires an anesthetic for procedures of short duration than does urology. On the other hand, no branch of surgery deals with such elderly, debilitated or profoundly ill patients. For these reasons the use of evipal in the field is of particular interest and merits special scrutiny.

Table 1. *Operative Procedures Performed under Intravenous Evipal Anesthesia.*

OPERATIVE PROCEDURE	NO. OF CASES
Total cystectomy	1*
Suprapubic prostatectomy	4*
Suprapubic cystotomy	3*
Vaginal cystotomy	1
Transurethral resection	9
Orchidectomy	1
Ureteral transplantation	1*
Excision of hydrocele	3
Excision of varicocele	1
Circumcision	12
Cystoscopy	63
Dilatation of urethra	11
Cauterization of urethral caruncle	1
Implantation of radon seeds	3
Incision and drainage of epididymitis	11
Incision and drainage of periurethral abscess	3
Resuture of wound	3
Removal of prostatic bag	5
Cauterization of cervix	2
Change of suprapubic catheter	2
Hemorrhoidectomy	2
Total	142

*Used to supplement local or spinal anesthesia.

Table 1 gives a list of the operative procedures which have been performed under intravenous evipal anesthesia. The technic of administration was identical with that previously outlined.[2] As might be expected, there was a ratio of 3 males to 1 female in this series. The youngest patient was nine years of age, the oldest eighty-five. The patients in the younger group required distinctly more anesthetic than did those in the older group. Thus the average dose required for cystoscopic examination in patients in the third and fourth decades of life was 8 cc., whereas in the seventh and eighth decades it was 4.5 cc. Although age is a guide to the amount of anesthetic required, individual idiosyncrasy to the drug always makes the fractional method of administration imperative.

The largest dose of evipal used in this series was 28 cc. In this instance satisfactory anesthesia was obtained with difficulty and lasted only twenty minutes. After the operation, however, the patient remained comatose for four hours. We now feel that it is a mistake to continue the drug in a patient who is obviously highly resistant to it; if satisfactory anesthesia is not obtained with 10 cc., another anesthetic had best be used. However, if satisfactory anesthesia is obtained with 10 cc. but the operative procedure is prolonged, we have no hesitancy in maintaining the anesthesia with repeated doses of evipal. An amount larger than 15 cc. is seldom used. In 1 case in our series excellent anesthesia was maintained for fifty minutes with the use of only 9 cc. The average dose was 7.3 cc.

Sixty-three cystoscopies have been performed under evipal anesthesia. In 62 of them the anesthesia was highly satisfactory. In only 1 case, that of a child of nine, was the anesthesia of a duration insufficient to permit a satisfactory examination. In young, excitable patients, and in cases where painful instrumentation, such as dilatation of a urethral stricture, is indicated, preliminary medication with 15 mg. (¼ gr.) of morphine is always given hypodermically. Spasmodic coughing during cystoscopy under evipal anesthesia has been reported,[3] but we have had no difficulty in this respect. In our hands evipal has proved a safe and efficient method of inducing narcosis; the rapid, smooth induction, the ease of administration and the usually prompt recovery render it ideal. It must be emphasized, however, that the drug is a general anesthetic and must not be used unless the necessary personnel and equipment to care for the patient are available. An assistant in addition to the one administering the anesthetic

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must be present, and a supply of oxygen, carbon dioxide and coramin must be on hand.

In the operating room evipal has proved equally efficacious. It is well suited for such procedures as excision of a hydrocele, incision and drainage of abscesses, implantation of radium and transurethral prostatic resection. It is particularly valuable as a supplement to local or spinal anesthesia. In young individuals, on the other hand, the relaxation is frequently inadequate for operations on the genitals. For this reason we feel that for circumcision evipal is not so satisfactory as gas-oxygen or even local anesthesia.

Contraindications to the use of evipal sodium have not been clearly defined. In our previous paper we listed them as liver damage, low blood pressure, the presence or imminence of shock, marked debilitation and asthma. There are certain other conditions frequently encountered in patients with urologic symptoms which require special consideration, such as sepsis, hypertension, cardiac or renal insufficiency, anemia and senility. In our series 30 patients were profoundly septic; of these, 17 cases were acute and 13 chronic. Long-standing, severe urinary sepsis is in our opinion a contraindication. This statement is based on the fact that in such cases the recovery period was frequently greatly prolonged, even after small doses. This prolonged period of coma, often lasting several hours, may predispose to pulmonary complications. Acute infection, on the other hand, presents no contraindication, except that larger doses of the drug may be necessary, and here again, with increasing doses, one finds a proportionately greater increase in the duration of the recovery period.

Hypertension in the absence of cardiac failure is no contraindication to the use of evipal. There were no untoward reactions in 8 of our patients, who had a systolic blood pressure of over 200 and a diastolic pressure of over 100. But it should be remembered that evipal may cause alarming falls in blood pressure, and in major operative procedures this may predispose to shock or collapse. The finding of an enlarged heart or cardiac murmurs does not prohibit the use of evipal, but decompensation is a definite contraindication. We have never used evipal in the presence of cardiac failure, but this has been done and fatalities have been reported.[4]

Patients with renal insufficiency may be divided into two groups, acute and chronic. In the acute cases we believe that the use of evipal had best be avoided. In 2 such cases we have noted profound depth of anesthesia and a markedly delayed recovery. One patient remained unresponsive for thirty-six hours after the administration of 9 cc. Chronic renal insufficiency, however, seems to be less dangerous. In our series, 13 patients had renal insufficiency as evidenced by a diminished phenolsulfonphthalein excretion and an elevated blood nonprotein nitrogen. These patients received evipal in doses of from 4 to 10 cc. without untoward reactions. Thirty-two patients with diminished phenolsulfonphthalein excretion but with normal blood nonprotein nitrogen received evipal in doses of from 5 to 12 cc. In this group, also, no ill-effects from the anesthetic were noted. Inasmuch as evipal is often desirable for cystoscopic examinations when determination of renal function is necessary, it is essential to know whether it produces a temporary cessation of renal function. In patients with normal renal function we have observed no delay in the appearance time of phenolsulfonphthalein or indigo carmine injected intravenously during evipal anesthesia. Finally, it may be noted that we have given evipal to 3 patients with chronic nephritis and have observed no ill-effects. This apparent immunity of the kidney suggests that as a basal anesthetic in patients with renal damage evipal sodium may possess advantages over avertin.

Anemia or senility per se constitutes no contraindication to evipal. In 11 cases the red-blood-cell count was between 1.8 and 3.5 million, but no unfavorable reactions occurred. It is true, however, that in such individuals a smaller dose is adequate. We have given the drug in small doses without complications to 12 patients over seventy years of age.

SUMMARY

Intravenous evipal anesthesia has proved highly satisfactory in urologic practice at the Peter Bent Brigham Hospital. It possesses the advantages of ease of administration, rapid induction and, usually, a prompt recovery. Acute or moderate degrees of chronic sepsis, hypertension, chronic myocarditis without cardiac failure, chronic renal insufficiency, anemia and senility have not proved to be contraindications to the use of evipal. It must always be employed with caution and under controlled conditions. Long-standing profound sepsis, acute nitrogenous retention, cardiac failure and liver disease, on the other hand, are absolute contraindications to its use.

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HUMAN AUTONOMIC PHARMACOLOGY

XVI. Benzedrine Sulfate as an Aid in the Treatment of Obesity

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BOSTON

WHEN energy intake in the form of food is greater than energy output, the excess potential energy is stored as body fat. If imbalance between food intake and energy output occurs, a change in weight must take place; whether it is to be a gain or a loss depends on the direction of the imbalance. From this point of view, the cause of obesity may be a defect of the appetite-regulating mechanism, rather than an alteration of metabolism. The perfect appetite mechanism will adjust itself to all changes of energy output, or metabolism, by a corresponding change in energy, or food intake, and thus the body will maintain its usual weight. Defect of the appetite mechanism will create imbalance in the energy output-intake relation, and a change in weight will result.

The factors which govern the appetite may be divided into the following groups: (1) physical status, particularly with reference to the endocrine glands; (2) social habits; and (3) psychologic influences. The effect of physical status on the appetite may be considered under the two aspects of disturbances due to acute or chronic organic disease, and disturbances due to metabolic abnormality as mediated through the endocrine glands. With regard to the former, little comment is needed, as the appetite disturbance of the sick is a matter of common knowledge. With regard to metabolic abnormalities, the bulimia of hyperthyroidism and the anorexia of Addison's disease may be mentioned as contrasting pictures. A more subtle disturbance of metabolism, mediated especially through the pituitary gland, has been invoked by many writers from von Norden onward, and has given rise to the concept of exogenous versus endogenous obesity.[1]

In this connection, the work of Newburgh and his associates[2] shows that energy exchange is in no way different in a proved case of pituitary disease (Cushing's syndrome) from what it is in normal persons. The loss in weight caused by any given reducing diet may be predicted for any period with great exactness. Furthermore, in patients suffering from myxedema, where the depression in energy metabolism is greater than it is in any other disease, striking obesity is the exception.

All visceral functions, including the appetites, are strongly modified by social habits. The appetite for food and eating have become almost as much social as they have physiologic and psychologic. People eat without particular desire under the influence of social feeling, as at parties and banquets. They are also forced to defer eating when the desire for food is very great, because of social conventions as to the serving of meals. In addition, the social and economic environment makes food and drink easily accessible to many without physical exertion.[3, 4]

The relation of physiologic, pathologic and sociologic phenomena to the causation and maintenance of obesity having been pointed out, there remains for discussion the effect on the appetite of numerous psychologic influences. In previous papers,[3, 4, 5] one of us (A. M.) has described a syndrome as part of the neurosis known as anhedonia. This symptom complex consists in a diminution, even to the point of disappearance or antagonism, of satisfactions normally obtained from life activities, and in a loss or distortion of the appetites and desires. The appetites involved are hunger, thirst and sex, desire for rest and recuperation, and desire for social relations, work and entertainment.

When satisfaction becomes impaired and there is no corresponding diminution in appetite, as is the case in the earlier stages of anhedonia, there is a restless seeking for stimulation in order to secure the longed-for satisfaction. The mood becomes unpleasant, and the expression of it may take many forms. One of such expressions, commonly seen in sedentary persons, is frequent eating. People who are restless because their lives are unsatisfied may be seen nibbling candy, nuts, crackers or the like. The ingestion of food becomes in a certain measure an escape. Food is easily obtained, and eating is often merely a something-to-do which has become a prime need.

The etiology of obesity and treatment of the obese person therefore appear to involve a careful consideration of the anhedonic syndrome, since in many such patients there is an associated neurosis of varying degree. A similar concept has been elaborated by Newburgh and his associates,[6] who have pointed out that obesity is in the main the outcome of a perverted habit and that there is "dull-

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ing of the acuity of the sensations, . . . weak will and a pleasure-seeking outlook upon life."

To attack the syndrome of anhedonic obesity through the psychologic mechanisms involved, in an effort to cut down the unphysiologic desire for food, seems more rational than the usual therapeutic efforts, which are largely aimed at increasing the metabolism through drug administration — for example, thyroid extract or dinitrophenol — or exercise, or decreasing the food intake by strenuous dieting. The latter methods are successful, but do nothing to eliminate the cause, that is, the anhedonia. This neurotic relation is shown by the easy fatigability of the obese, which is, we believe, due not so much to the excessive weight that must be carried as to the neurotic factors which have produced and are sustaining the obese state. This is well attested by the fact that in many of the cases to be described the fatigue was not that seen after physical effort, unusual or customary, as in normal persons, but was the characteristic "morning tiredness," occurring even without the expenditure of energy, which is seen in the neurotic and the physically sick. Thus, the excess food ingestion of the anhedonic obese person rarely occurs in the morning, when desire and mood are especially low, but comes later in the day and in the evening.

Benzedrine sulfate (phenylisopropylamine) is an advantageous drug with which to attack the problem. Its action is primarily that of a sympathetic stimulant; chemically speaking, it is an adrenergic drug. Thus, on the eye and the vascular system it has the classic effects of sympathetic stimulation; it relaxes the spasm of the gastrointestinal tract,[8] and tends to decrease the gastric juice while increasing its acidity.[9] Its effects on the mood, on the sensation of energy and its output, and on the gastrointestinal tract offered the desired psychophysiologic action. Given in small doses, below the point where it produces marked changes in the visceral activities, benzedrine sulfate prevents sleepiness and drowsiness; this is the basis for its use in narcolepsy.[10] The dissipation of the feeling of fatigue and the beneficial influence on state of mind effected by this drug in both normal and neurotic persons have been established by recent reports.[11, 12, 13] Because of these psychologic effects the urge to eat as a means of filling out an empty existence is lessened.

The direct effect of benzedrine sulfate on the appetite for food is of primary importance in the group of cases to be discussed. That it seems to cause a loss in weight has already been noted by Nathanson.[12] Evidence of its ability to reduce the appetite will be adduced below.

A group of 17 unselected and consecutive private patients, with a primary complaint of obesity, were placed after initial study on a measured, unweighed diet of about 1400 calories, with an approximate composition of protein 69 gm., fat 57 gm., carbohydrate 150 gm., calcium 0.65 gm. and iron 0.014 gm. No further instructions as to the diet were given after the first visit. No patient was urged to follow the diet, or to do otherwise than obey his natural desire. All patients were observed at intervals of from seven to fourteen days, and at each visit the weight, blood pressure and pulse rate were observed. All reported symptoms were noted, and leading questions which might obscure the subjective effect of the drug were avoided. Prolonged observation by Myerson and his associates[14] indicated that in man the elevation of the blood pressure was the most toxic effect of benzedrine. This hypertensive effect was rarely associated with an increase in the pulse rate. The dosage of benzedrine utilized never caused blood-pressure elevation, even in patients with hypertension. Subjectively, the more important criteria of benzedrine toxicity were nervousness, a jittery sensation and nocturnal insomnia. Here again, careful regulation of the dosage prevented these reactions.

Benzedrine sulfate is distributed in 10-mg. tablets, which are scored so that they may be broken into quarters, each representing 2.5 mg. The most satisfactory plan of treatment was to give three doses daily — a large dose in the morning immediately on waking or rising, a moderate dose at noon and a small or moderate dose in the late afternoon. As a rule, we started with 7.5 mg. on arising, 5 mg. at noon, and 2.5 mg. at 5 p. m. This dosage was gradually increased from week to week as the need arose, but the dosage was stopped well short of the point at which nervousness or nocturnal insomnia was produced. Ordinarily, an increase of 5 mg. weekly caused no untoward symptoms. The largest dose given any patient was 30 mg. daily, divided into three unequal doses (12.5 mg. on arising, 10 mg. at noon and 7.5 mg. at 5 p. m.).

This dosage schedule accomplished two desirable results: the largest dose was given in the morning, when the feeling of the energy was at its lowest, and the smallest was given in the afternoon, when the energy output was increasing and the time for sleep was approaching. In occasional cases, where the appetite for excess ingestion of food during the evening was uncontrollable, the plan of giving a large dose in the morning, a small dose at noon, and a moderate or large dose at 5 p. m. was tried with some success, particularly if insomnia did not follow. All patients were supplied with only enough tablets to last until the next

visit, in order to prevent dangerous self-medication. No patient was given a prescription for the drug or was told its name.

Tolerance to the drug, so far as its effect on the appetite was concerned, did not seem to develop, for substitution of placebo tablets or omission of the drug always caused a return of increased appetite, even after months of administration.

Out of the group of 17 cases, the complete histories of 8 are given below. Table 1 gives the

Table 1. *The Effect of Benzedrine Sulfate as an Aid in the Treatment of Obesity.*

CASE NO.	SEX	INITIAL WEIGHT	PERIOD OF OBSERVATION	TOTAL WEIGHT LOSS	AVERAGE WEEKLY WEIGHT LOSS	MAXIMUM DAILY DOSE OF BENZEDRINE
		lb.	*weeks*	*lb.*	*lb.*	*mg.*
1	F	171	17	29	1.7	22.5
2	F	210	15	17	1.1	27.5
3	F	194	23	26	1.1	22.5
4	F	216	6½	11½	1.7	25.0
5	F	145	10	11	1.1	13.0
6	F	217	6	7¾	1.3	22.5
7	M	316	12½	54	4.3	30.0
8	F	189	20½	32	1.5	20.0
9	F	150	19	27	1.4	22.5
10	F	231	25	48	1.9	27.5
11	F	157	10	18	1.8	20.0
12	F	176	10	0	0	22.5
13	F	135	12	13	1.1	22.5
14	F	145	14	9	0.6	30.0
15	F	151	10½	20¼	1.9	17.5
16	F	207	10	10	1.0	27.5
17	F	179	10½	13½	1.3	15.0

factual data for the entire group. Although we here stress the utilization of benzedrine in cases of obesity which are associated with varying degrees of anhedonia and neurosis, the drug was found to be of as much benefit in cases of obesity without any obvious neurotic background, such as a case associated with narcolepsy and several cases with endocrine stigmas.

CASE REPORTS

Case 1 (obesity with psychoneurosis). A housewife of 24 complained of being overweight and of abnormal fatigability. She had gained 25 lb. since the birth of her baby 7 months before. For over a year she had noted increased fatigue, particularly on wakening in the morning. The past history was otherwise negative.

The height was 62 in. and the weight 169 lb. (50 lb. overweight). There was no deviation from normal except for the generalized obesity. The blood pressure was 110/64. The urine was free of albumin, sugar and abnormalities of the sediment.

The patient was placed on the standard low-calorie diet. She did not return again until 11 months later, when she weighed 171 lb. She stated that she felt tired and sleepy all the time, had become very nervous and had frequent crying spells. Examination at this time revealed no change from the previous one. The blood pressure was 110/60.

In view of the fact that the patient was suffering from a psychoneurosis, she was given both stimulating and sedative therapy. She was placed on benzedrine sulfate, 5 mg. on arising, 5 mg. at noon and 2.5 mg. at 5 p. m., and Amytal (isoamylethyl barbituric acid), 15 mg. at noon, supper and bedtime. In addition, she was given the standard low-calorie diet. During the course of the next month she was seen at weekly intervals and showed a weight loss of 16 lb. Her nervousness gradually decreased, her crying spells disappeared and she stopped munching between meals. She had no difficulty in getting a satisfactory night's sleep. She stated, "I am not hungry any more." For the first time in her life, however, she became slightly constipated. During this period the blood pressure and pulse rate remained unaltered.

At the close of the 1st month of therapy the patient was given a 2 weeks' supply of the tablets and told to return at that time. This she was unable to do, so that she was not seen again until 6 weeks later. At this visit she stated that following the omission of the benzedrine tablets she had had a marked increase in appetite: "I kept nibbling all day. When I take the tablets [of benzedrine] I have to force myself to eat." Whereas she had lost 16 lb. in her 1st month of treatment, during the subsequent 6 weeks she lost only 5 lb. During the period of benzedrine therapy, she finally attained a dosage of 10 mg. on rising, 7.5 mg. at noon and 5 mg. at 5 p. m. The tablets of isoamylethyl barbituric acid were omitted when the nervous symptoms disappeared. Following the resumption of benzedrine therapy the loss in weight continued, and in the final 6 weeks she lost 8 lb. During 2 of these weeks she again missed an appointment and was without benzedrine for 2 weeks. Upon cessation of the benzedrine her appetite became "tremendous," and she ate so much that there was a temporary gain in weight. At her last visit she stated that she felt perfectly well, and physical examination disclosed no abnormality. She lost 29 lb. during the 17 weeks of observation.

Case 2 (obesity with psychoneurosis). A housewife of 32 complained of being overweight and of weakness, easy fatigability and tiredness. She had always been overweight, but since her marriage 8 years previously her weight had increased from 165 to 212 lb. without apparent cause. Her appetite had always been very good, and she ate a great deal between meals. She had had weakness and easy fatigability for the past year. Six and a half years previously, following the birth of her first child, she had had a "nervous breakdown." During that period she lost 35 lb., so that her weight dropped to 140 lb. Since then her weight had increased to its present figure. The cause of the breakdown was not known to her. She said that at that time, "I could not eat. . . . I could not look at food. . . . I had terrible and crazy thoughts; nothing interested me. . . . I did not care for anything. . . . I had frequent ideas of falling." She was ill for about a year with this condition, and then gradually improved. She had always slept well but awoke every morning with a tired feeling and without a normal sensation of restfulness. During the day her fatigue occurred without relation to exertion. The rest of the history was irrelevant.

The height was 61 in. and the weight 210 lb. (87 lb. overweight). The patient showed a centripetal obesity, the fat being chiefly over the buttocks, thighs, abdomen and upper arms. The hands and feet were small and in proportion to the height. The blood pressure was 120/80. The rest of the examination was normal. The hemoglobin was 60 per cent (Sahli) with 4,100,000 red blood cells per cu. mm. The blood smear showed moderate hypochromia of the red cells, but no abnormalities of the white cells. A sugar-tolerance test, following the ingestion of 100 gm. of dextrose in 20 per cent solution, showed no glycosuria up to 2 hours. The blood sugar at the end of the 2nd hour was 72 mg. per cent (Folin-Wu method).

This patient was placed on the standard low-calorie diet and was given benzedrine sulfate, 7.5 mg. on rising, 5 mg. at noon and 5 mg. at 5 p. m. This was gradually increased to 10 mg. on rising, 10 mg. at noon and 7.5 mg. at 5 p. m. The patient was observed at weekly intervals for 15 weeks,

during which time she lost 17 lb. Her fatigue disappeared, although her sense of well-being was not particularly improved. There was a significant decrease in the appetite. The blood pressure remained within normal limits. This patient is still under observation.

Case 3 (obesity with psychoneurosis). A housewife of 38 complained of being overweight and of nervousness. She had been overweight most of her life. Seventeen years previously, at the time of her marriage, she had weighed 140 lb., and since then had gradually gained in weight. One year previously she had undergone a tonsillectomy, and had gained 15 lb. shortly thereafter. Her appetite had always been excellent, but she was not accustomed to eating between meals. She stated that she had always done her own cooking and did do a good deal of tasting. Recently she had become accustomed to sleeping 10 or 11 hours at night. She had been nervous and easily irritable since her husband had been diagnosed as having heart trouble. Her father had died of Bright's disease at the age of 52, and one brother had diabetes and heart trouble. The rest of the history was negative.

The height was 64 in. and the weight 194 lb. (62 lb. overweight). Except for generalized obesity, the physical examination was negative. The blood pressure was 126/80. The urine was free of albumin, sugar and abnormalities of the sediment. The hemoglobin was 78 per cent (Sahli). The basal metabolic rate in a satisfactory test was —15 per cent (Mayo standards).

The patient was placed on the standard low-calorie diet and given benzedrine sulfate, 2.5 mg. on rising, 2.5 mg. in mid-morning and 2.5 mg. at noon. The dosage was gradually increased until she was taking 10 mg. on rising, 7.5 mg. at noon and 5 mg. at 5 p. m. This patient was seen at weekly intervals for a period of 23 weeks and in that time lost 26 lb. The craving for food was lost; the nervousness and irritability became markedly decreased. She slept well, was free of all unpleasant subjective symptoms and in fact had a sense of well-being. Benzedrine was omitted and placebo tablets were given for 2 weeks during the period of observation; during that time, she spontaneously stated, she had had a return of her nervousness and craving for food. During this period there was a gain in weight of 2 lb.

Case 7 (obesity with narcolepsy). A 34-year-old salesman complained of being overweight and of sleepiness. His birth weight was 16 lb. and he had been continuously overweight since birth. At the age of 16 he weighed 140 lb.; at the age of 19, 200 lb. His weight gradually increased until at the age of 29 he weighed over 300 lb. The weight had been stationary for the last 4 years. His appetite had always been very good, and he ate continuously throughout the day. In addition to sleeping 9 or 10 hours at night, he found himself continually falling off to sleep throughout the day whenever the opportunity presented itself. In the past history there was nothing of importance except that he had had gonorrhea 18 years before, which had apparently never cleared up, as since then he had noted a slight penile discharge intermittently. He had also had nocturia during the last 7 or 8 years, but apparently no daytime frequency or polyuria. There was no impairment of sexual desire or potency.

The height was 69 in. and the weight 316 lb. (158 lb. overweight). The blood pressure was 104/80. The patient was very obese, with the excess adiposity concentrated about the abdomen. There were a few red striae over the lower abdomen. The fundi showed clear and well-outlined nerve heads, normal arteries and slightly engorged veins. The mouth, throat, neck, heart and lungs were normal. The genitalia were normal. All reflexes were normal. The urine had no albumin or sugar, but the sediment showed 10 white blood cells per high-power field, and the stained urinary sediment showed many extracellular cocci. The prostatic smear showed many pus cells and cocci. The basal metabolic rate was +8 and +10 per cent (Mayo standards) in two fairly satisfactory determinations. The blood Hinton test was negative. Blood sugars taken 1 and 2 hours after the ingestion of 100 gm. of dextrose in 20 per cent solution showed values of 174 mg. per cent and 95 mg. per cent respectively. A 24-hour urine was measured to exclude the possibility of diabetes insipidus and showed a volume of 3000 cc.

This patient presented two clinical problems: lethargy almost to the point of narcolepsy, and a huge appetite, present since birth. He was placed on the standard low-calorie diet and given benzedrine sulfate, 10 mg. on rising, 10 mg. at noon and 5 mg. at 4 p. m. This dosage was later changed to 12.5 mg. on rising, 10 mg. at noon and 7.5 mg. at 5 p. m. He was seen at weekly intervals for the next 12½ weeks, during which period he lost 54 lb. He followed the diet with ease, and stated voluntarily that his appetite was markedly decreased, and that he had become more active physically and felt very well. His daytime drowsiness disappeared, although he continued to sleep well at night. No unusual symptoms presented themselves, except for slight constipation. He stated that he was seldom hungry and was satisfied with the amount of food allowed in the diet. For 1 week during the period of observation he did not take the benzedrine tablets, and during that period there was no loss in weight and the narcolepsy returned. Upon resumption of the benzedrine tablets the drowsiness disappeared and the loss in weight continued. Later on the patient stopped all treatment for 1 month and regained 11 lb. in that time. Upon resumption of benzedrine the loss in weight continued as before.

Case 8 (obesity with hypomenorrhea). A housewife of 27 complained of being overweight and of irregular menstruation, shortness of breath, backache and nervousness. In the 6 months preceding her first visit she had gained 40 lb. For many years before that her weight had been constant. She did not know the cause of her gain in weight, and felt sure it was not due to overeating or any change in activity. Careful inquiry disclosed one significant change in her daily habits which was a factor. Shortly before the onset of her gain in weight, her 5-year-old son had started to attend school. Whereas previously, having once risen in the morning she was accustomed to staying up, she had now developed the habit of going back to bed for several hours after sending her son to school. Since her regular sleeping habits had not changed in any way, this gave her several hours more of rest every day. She had always been a light sleeper, accustomed to going to bed late and rising early because of her children.

During the period of gain in weight, her menses, which had previously occurred at 28-day intervals, came from 1 to 3 weeks late and were of short duration, with a more scanty and painful flow. During that time she had also noted some low-back pain, usually made worse by prolonged sitting. She had consulted a gynecologist, who found no pelvic abnormality. The shortness of breath was of only a few months' duration and occurred following the gain in weight. Her past history showed that she had been pregnant twice and on each occasion had developed hypertension, which was said to have disappeared at the end of the pregnancy.

The height was 65 in. and the weight 189 lb. (53 lb.

overweight). Except for generalized obesity, the examination was negative. The blood pressure was 126/84. The urine showed no albumin, sugar or abnormalities of sediment. The hemoglobin was 70 per cent (Sahli); the red blood cells numbered 4,000,000 per cu. mm., and the smear showed normal red and white blood cells.

This patient was placed on the standard low-calorie diet. She was given a mild hypnotic (sodium bromide) to aid her in securing sound sleep, and a fairly large dose of benzedrine in the morning immediately on rising in order to break up the habit of returning to sleep. On this regimen she showed a weight loss of 32 lb. in 21 weeks. The blood pressure ranged from 140/90 to 106/76, tending to drop during observation. During the course of treatment she found it very easy to follow the diet. Moreover, the morning benzedrine tablet eliminated the desire to go back to bed at that time. She had no difficulty in falling asleep at night, and after a few nights omitted the hypnotic entirely. Her feeling of energy was markedly increased, and her appetite was noticeably less. She became slightly constipated. There were no untoward symptoms, except occasional headaches, which were no more frequent than those she had occasionally had before taking the benzedrine, and were of the same nature. Toward the end of the period of study the patient developed an increase in appetite during the evening. To counteract this, the benzedrine medication was rearranged so that she took 5 mg. on rising, 2.5 mg. at noon and 7.5 mg. at 5 p. m. This rearrangement did not seriously interfere with sleep, and it helped in decreasing the excessive evening appetite. During a 2-weeks period the patient was given placebo tablets and gained 4 lb. She noted a return of sleepy spells and marked increase in appetite.

Case 9 (obesity following subtotal thyroidectomy). A houseworker of 38 complained of being overweight. Two years before her first visit she had had a subtotal thyroidectomy for hyperthyroidism, from which she had completely recovered. In the 2 years following the operation she had gained 35 lb., mostly in the 1st year. The rest of the history was irrelevant.

The height was 61 in. and the weight 150 lb. (27 lb. overweight). There was generalized obesity. The eyes were prominent but showed no lid lag. The skin over the elbows and over the posterior surfaces of the upper arms was somewhat dry and rough. The hair was slightly coarse. The neck showed a well-healed thyroidectomy scar, with a small amount of thyroid tissue palpable in both lobes. There was slight puffiness under the eyelids. The urine was free of albumin, sugar and abnormalities of the sediment. The hemoglobin was 78 per cent (Sahli); the red-blood-cell count was 4,650,000; the smear was normal; the basal metabolic rate was —3 per cent (Mayo standards) in a satisfactory test; the blood pressure was 110/80.

There was an apparent disturbance in the appetite-regulating mechanism, as evidenced by a constant craving for food. There was no clear-cut clinical evidence of myxedema, and the basal metabolic rate bore out this negative impression. She was therefore placed on the standard low-calorie diet and was given benzedrine sulfate, 5 mg. on rising, 5 mg. at noon and 2.5 mg. at 5 p. m. This dosage was gradually increased until she was receiving 10 mg. on rising, 7.5 mg. at noon and 5 mg. at 5 p. m. Her highest blood-pressure reading during the course of treatment was 126/84. The pulse rate was always within normal limits. She was seen at biweekly intervals during the next 19 weeks, during which time she lost 27 lb. There were no untoward symptoms throughout the course of observation. Her sleep was not interfered with and she found it very easy to follow the diet. Her appetite was good, but she lost the craving for food. She was discharged after 19 weeks of treatment because she had attained her normal weight. The final physical examination showed no abnormalities.

Case 10 (obesity). A housewife of 45 complained of being overweight and of easy fatigability. She had been overweight all her life. Twenty years previously, at the time of her marriage, she weighed 170 lb. Her appetite had always been unusually good. She had dieted many times but without any success, and in fact within the preceding months had gained 5 lb. The rest of the past, marital and family histories was irrelevant.

The height was 65 in. and the weight 231 lb. (95 lb. overweight). There was generalized distribution of the excess fat except for the breasts, which were normal in size. The blood pressure was 152/78. The heart was not enlarged, but a barely audible systolic murmur was heard over the apex. The rest of the examination was normal. The urine was free of albumin, sugar and abnormalities of sediment.

The patient was placed on the standard low-calorie diet and was given benzedrine, 5 mg. on rising, 2.5 mg. in mid-morning and 2.5 mg. at noon. This dosage was gradually increased and the time of administration was rearranged, so that eventually she was taking 12.5 mg. on rising, 10 mg. at noon and 5 mg. at 5 p. m. She was seen at intervals of 10 days over a period of 25 weeks, and during that time lost 48 lb. The initial blood pressure, which was somewhat elevated, showed a normal reading on subsequent visits, and on several occasions went as low as 104/70. During the period of observation she noted a decreased appetite and an increased feeling of energy. There were no other subjective changes. She found it easy to follow the diet. For several weeks the rate of loss in weight was so marked that the diet had to be increased. At no time was there interference with the ability to fall asleep or stay asleep. During one 10-day interval, blank placebo tablets were substituted for the benzedrine sulfate. The patient gained weight in that period and noted a marked return of appetite and "extreme hunger."

Case 12 (obesity — failure of benzedrine to aid in reducing weight). This patient, a student of 20, had been under intermittent observation for a period of 3 years. She had undergone a previous course of reducing with diet and thyroid extract quite satisfactorily, attaining a final weight of 135 lb., 2½ years before the present period of study. In the interim she had gradually gained weight to a maximum of 177 lb. This gain occurred while she was working as a cook.

The height was 63 in. and the weight 176 lb. (48 lb. overweight). Examination showed centripetal obesity, the excess adiposity being largely confirmed to the middle third of the body, and most marked over the buttocks and upper thighs. The breasts were small and pubescent. The hair distribution was normal. The rest of the examination was normal. The basal metabolic rate in two determinations was ±0 per cent (Mayo standards). The blood pressure was 94/60.

The patient was placed on the standard low-calorie diet and was given benzedrine sulfate, 7.5 mg. on rising, 5 mg. at noon and 2.5 mg. at 5 p. m. The dosage was gradually increased to 10 mg. on rising, 7.5 mg. at noon and 5 mg. at 5 p. m. Over a period of 10 weeks there was no change in weight. Numerous unpleasant symptoms were complained of — inability to breathe deeply, marked nervousness, constipation, dry cough, increased irritability with difficulty in falling asleep and marked fatigue. Further study of the emotional background dis-

closed that just before coming under observation the patient had gone through an unhappy love affair, which had left her quite depressed. She stated that during her periods of greatest depression she ate large amounts of food in an effort to compensate for her disturbed emotional state. The benzedrine in this instance had of course failed to restore the feeling of well-being and of increased energy, which is often essential to its action in reducing the appetite. Appropriate psychotherapy in this patient eventually restored some degree of emotional calm, and the administration of benzedrine during this phase effected moderate loss in weight without unpleasant symptoms.

Benzedrine sulfate is an important aid in the treatment of obesity of any type; on the one hand it decreases the appetite, and on the other so increases the sense of well-being and of energy that physical activity is spontaneously increased. Its proper place in the treatment of obesity is as an adjuvant. In association with a properly selected low-caloric diet, it helps the patient to follow the diet with greater ease by abolishing the neurotic and ill-timed craving for foods which plays so important a role in the genesis and maintenance of the obesity. Our experience, however, shows that benzedrine will not so readily effect weight reduction when it does not lift the patient's mood and increase his sense of well-being. In the more profound neuroses where elevation of mood is not in any permanent way affected by the drug and where the appetite is already absent, benzedrine sulfate is not indicated. Its use in the neurotic obese, therefore, is largely limited to those cases associated with what we have here termed a mild anhedonic state.

SUMMARY AND CONCLUSIONS

1. Obesity is often due to a defect in the mood which upsets the appetite-regulating mechanism. In such cases increased eating, which does not represent true hunger, takes place in order to offset and compensate for the disturbed mood.

2. The commonest cause of this disturbance in appetite is the anhedonia associated with psychoneurosis.

3. Benzedrine sulfate, by improving the anhedonic state, acts as an aid in obese neurotic persons.

4. Benzedrine sulfate has a direct effect in depressing the appetite and in increasing physical activity, and is therefore useful in any type of obesity.

5. In a group of obese patients suffering from associated psychoneuroses, endocrine disease and narcolepsy, benzedrine sulfate has been used as an adjuvant to weight reduction without development of any toxic signs or symptoms, during periods ranging from six to twenty-five weeks.

At the time of going to press benzedrine sulfate has been used in the treatment of 40 obese patients over periods of from three to nine months. The above conclusions are substantiated with regard to benefit and lack of toxicity in the indicated dosage.

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CASE RECORDS OF THE MASSACHUSETTS GENERAL HOSPITAL

ANTEMORTEM AND POSTMORTEM RECORDS AS USED IN WEEKLY CLINICOPATHOLOGICAL EXERCISES

FOUNDED BY RICHARD C. CABOT, M.D.

TRACY B. MALLORY, M.D., *Editor*

CASE 24031

PRESENTATION OF CASE

A sixty-four-year-old, white, married Swedish gardener entered the hospital with a complaint of jaundice of two months' duration.

He had always been well until two months before entry, when he noticed gradually increasing jaundice of his skin, unaccompanied by pain, chills or gastrointestinal symptoms. As the jaundice became deeper, he noticed that he bruised easily. He developed severe pruritus which caused him to scratch his skin, producing many excoriations. Six weeks before entry he noticed that his stools were slightly paler than normal, and by the time he entered the hospital they were clay colored. During this time his urine became mahogany colored. During the three days before entry he had passed small amounts of bright-red blood in his stools but previously he had had a barium enema. He had had no other symptoms of any kind except anorexia and loss of 25 lb. in weight.

During all his adult life he had drunk alcoholic beverages daily. He had taken very little during prohibition, but after that for the four years before entry he had had two or three beers and one whiskey eggnog every day. His past history was otherwise negative. He denied ever having had syphilis.

His wife and two children were living and well, and there had been no miscarriages.

Physical examination revealed a well-developed, fairly well-nourished deeply jaundiced man. He was in excellent spirits and felt well except for severe pruritus. There were numerous small excoriations distributed over practically the entire body. The heart and lungs were negative, and the blood pressure was 125 systolic, 85 diastolic. The liver edge was easily palpable three fingerbreadths below the costal margin and was smooth and nontender. There was no tenderness anywhere in the abdomen, and no masses were palpable. The spleen could not be felt. There were a few shotty nontender lymph nodes in the inguinal regions. There were a few external hemorrhoids, and the prostate was normal.

The temperature was 98°F., the pulse 70. The respirations were 20.

The urine had a specific gravity of 1.013, contained the slightest possible trace of albumin and 4+ bile and showed 2 red cells and occasional white cells per high-power field in the sediment. The blood showed a red cell count of 3,880,000 with 60 per cent hemoglobin. The white cell count was 7100, 73 per cent polymorphonuclears. The bleeding time was one and a half minutes. The clotting time varied from fifteen to twenty-one minutes, and there was very little clot retraction. The stool was guaiac negative on two occasions. A van den Bergh was 38.2 mg. per cent, biphasic. A blood Hinton test was negative once and doubtful once, and the Wassermann was negative. A Takata-Ara test was negative.

A gastrointestinal x-ray series showed small indefinite filling defects of the esophagus suggestive but not characteristic of varices. The stomach and duodenum appeared normal. The shadow of the liver was moderately enlarged, but there was no evidence of enlargement of the spleen. An x-ray of the chest showed no evidence of metastatic malignancy, but there were two or three indefinite areas of density at the right border of the heart which could have been enlarged glands. Many calcified nodes were present.

On the seventh day duodenal drainage was attempted. An x-ray showed the tip of the catheter apparently lying in the antrum of the stomach. The material aspirated gave a positive test for bile and a questionably positive guaiac test. Soon afterward the tube was passed successfully into the duodenum and bile-stained material was aspirated. The sediment from this specimen contained 4 or 5 red cells per high-power field, and occasional white cells, some in clumps. On the following day the duodenal contents were bile negative, and the blood van den Bergh was reported as 57 mg. per cent, biphasic. About that time he complained of pain in the left shoulder, and examination revealed a tender mass measuring 2.5 by 3 cm. in diameter just medial to the scapula. By the eleventh day this mass had increased in size to a diameter of about 8 cm. and was sufficiently painful to interfere with his sleep. It was not red or fluctuant. On the following day he had a moderate nosebleed and some bleeding from an excoriation on the back of his neck. The bleeding time was two minutes and the clotting time varied from fifteen to thirty-one minutes. The clot retraction was normal. The white-cell count of the blood was 12,800, with 68 per cent polymorphonuclears, but his temperature remained normal. A laparotomy was performed on the fourteenth day after two preoperative transfusions.

DIFFERENTIAL DIAGNOSIS

DR. MARSHALL K. BARTLETT: Our problem in this case concerns a man of sixty-four who has

painless jaundice of two months' duration, which has steadily progressed apparently without definite fluctuation in the degree of jaundice. It seems to me that the first thing to try to decide is whether the jaundice was due to obstruction of the common duct or to an intrahepatic process of some kind. I think we can rule out syphilis on the basis of his negative blood Hinton and Wassermann tests and the absence of anything suggestive in the history.

In regard to cirrhosis of the liver, it seems to me that the only things in this case that particularly favor such a diagnosis, are the facts that he is a man with a history of prolonged alcoholic intake and that there were questionable esophageal varices by x-ray. Against cirrhosis are the short duration of the disease, its relatively rapid progress and a lack of any preceding gastrointestinal story of any kind. The spleen was not palpable, and he had no ascites that could be made out clinically; also, the jaundice was very deep and had progressed quite rapidly. So we have to assume that this man had an obstructive jaundice, and we must try to decide where the obstruction was and what caused it. For practical purposes we must differentiate gallstones and malignant neoplasm. I cannot see anything in this story in favor of gallstones except the fact that it is a more common disease than neoplasm with obstruction to the common bile duct. He has no past history suggesting gall-bladder disease. He has had no pain at any time. The jaundice has been steadily progressive from the onset until his admission, at which time he apparently had nearly complete obstruction of the common duct. Again favoring neoplasm is his rather great and rapid weight loss, 25 lb. in two months. It seems to me, then, that we have to say that the chances are overwhelmingly in favor of a malignant obstruction rather than a gallstone, although I think we cannot get around the possibility that a gallstone can do all these things. It is not so likely as neoplasm.

The best possibility is carcinoma of the head of the pancreas. What of a neoplasm involving primarily the bile duct and possibly the gall bladder? It is perfectly possible but less common. The various bleeding phenomena are perfectly explainable on the basis of jaundice. I do not feel very happy about that mass on his back, medial to the scapula, which appeared toward the end. The rapid increase in size is striking. When it was first noticed it was 3 cm. in diameter and on the eleventh day it was 8 cm., and painful. It seems to me too rapid an increase in size for a metastasis, and it must be, I suppose, an infected hematoma. So my diagnosis in this case is carcinoma of the head of the pancreas with obstruction of the common duct with resulting jaundice and various bleeding phenomena.

Dr. Neil L. Crone: We felt more or less the way Dr. Bartlett did. One thing I should like to say that might have made it easier is that the mass over the scapula at first was non-fluctuant, but as it increased in size, it became definitely fluctuant. It did not involve the skin and was never red. I shall read the note which I wrote to Dr. Linton: "I believe that this man should be explored. I feel that he has carcinoma of the pancreas or bile ducts (probably the latter). I admit that cirrhosis is possible, but such a diagnosis cannot be made. Regardless of this possibility I believe exploration should be done."

The red cells in the duodenal drainage partially influenced me toward the possibility of cancer of the bile duct; furthermore, I felt that if he had carcinoma of the pancreas which had eroded through the duodenum it certainly ought to show by x-ray.

Dr. Tracy B. Mallory: Were you present at the operation? Can you tell us what was found?

Dr. Crone: It is always difficult for a medical man who has not scrubbed to see much. Dr. Linton found the liver enlarged and apparently rotated. The gall bladder was not distended, in fact it was quite decompressed; otherwise it appeared normal. The head and body of the pancreas were normal. The common duct was not distended; it was collapsed. No obstruction could be found. There were no stones in the gall bladder or common duct. Our impression of the liver was that it presented the appearance of acute hepatitis.

The patient died three days later without any further developments that seemed significant from the point of view of diagnosis.

Clinical Diagnoses (Preoperative)

Obstructive jaundice.
Carcinoma of the head of the pancreas or of the bile ducts?
Common duct stone?

Dr. Bartlett's Diagnoses

Obstructive jaundice.
Carcinoma of the head of the pancreas.
Hematoma of the back.

Anatomic Diagnoses

Carcinoma of the extrahepatic bile ducts.
Operation wound: exploratory laparotomy.
Hemorrhage, postoperative.
Hydrohepatosis.
Purpura.
Hydrothorax, bilateral.
Icterus.

Pathological Discussion

Dr. Mallory: The autopsy showed a very large liver. It was very pale green at autopsy, and as I understand it, it was a dark green at the time of operation.

Dr. Crone: Yes, it was.

Dr. Mallory: That would be a very unusual finding for toxic hepatitis. One almost always finds yellow jaundice of the liver rather than green jaundice with an acute intrahepatic lesion. That certainly is true at autopsy and I believe it is at operation. Would you agree, Dr. Allen?

Dr. Arthur W. Allen: Yes.

Dr. Mallory: The common bile duct, the cystic duct and the gall bladder proved to be entirely negative. When we reached the point where the two hepatic ducts join we could feel some slightly firm tissue practically in the hilus of the liver. In gross, opinion in the laboratory was divided as to whether it was an inflammatory stricture or a neoplasm. On the whole most of us after palpating the lesion favored inflammatory stricture, but that would be quite extraordinary in a patient who had never been operated on and who had had no evidence of gallstones. Microscopic examination showed primary carcinoma of the bile ducts evidently arising at the juncture of the two hepatic ducts so high up that any form of anastomosis would have been impossible.

A Physician: Did you look at his shoulder?

Dr. Mallory: We did not turn the body over.

Dr. Richard B. King: In what proportion of cases of carcinoma of the pancreas can you feel a mass?

Dr. Mallory: I should guess that two thirds of the time you might feel one.

Dr. Crone: Could the blood in the duodenal content have come from this tumor?

Dr. Mallory: It certainly could have. I think one has to be very cautious, however, in interpreting small amounts of blood in the gastrointestinal tract of a jaundiced patient. Many of them bleed all up and down the gastrointestinal tract, without gross lesions.

CASE 24032

Presentation of Case

A forty-eight-year-old Swedish laundryman was admitted complaining of weakness and numbness of the legs. During the two years preceding entry the patient had noticed occasional stiffness and weakness in the neck. During the same time there was slightly increasing fatigue. He recalled some difficulty in getting about in the dark because of easy loss of sense of direction. About a year before entry he began to have spells of faintness although he did not lose consciousness. Six months before entry he began to have numbness of the calves, feet and posterior thighs, particularly on the right. There were also some numbness and weakness of the forearms, more on the left. Shortly afterward he had numbness and loss of taste on the left side of the tongue, although he was still able to smell with the left nostril. Three months before entry he developed morning nausea and vomiting. He attributed this to beer which he apparently had been drinking in large quantities. He discontinued the beer drinking, but the nausea and vomiting persisted. Four weeks before coming to the hospital his wife noticed asymmetry of his face due to weakness of the left side, and at this time his legs became weaker, so that he had to be very careful about walking. His neck became weaker, and his head felt heavier. He complained of blurring of vision in both eyes, although a physician told him that his eyes were normal. The patient had also noted headache, dizziness and nervousness. Weakness in the left leg caused him to stagger, particularly to the left.

At the age of six months it was noted that his left shoulder was paralyzed. Twenty years before entry he developed deafness in the left ear which was associated with hissing noises. The deafness increased until it became complete. The tinnitus disappeared several years ago.

Physical examination showed a rather thin man in no acute discomfort. The muscles of the left shoulder cradle and the deltoid and biceps were atrophied in appearance. The left upper chest was more prominent than the right. There was left fifth-nerve weakness with sensory loss on the left side of the face, skin, mucous membranes and tongue. The left corneal reflex was absent, and there was left nerve deafness. There was facial asymmetry with questionable drawing up of the muscles of the left cheek. The strength of the arms and legs appeared to be normal and equal on both sides except for evidence of old left brachial palsy. The finger-to-nose and the heel-to-knee test showed evidence of asynergia on the left side. Position sense was preserved. There was hypoalgesia of the right arm. The pupils reacted normally to light. The triceps, biceps and radial reflexes were absent. The abdominals were present but diminished. The knee jerks were normal and symmetrical. Cremasteric reflexes were absent. The ankle jerk was present on the right, absent on the left. Plantar stimulation showed dorsiflection of the great toe bilaterally. Caloric tests failed to elicit nystagmus on the left. There was absence of taste perception on the left side of the tongue.

The temperature, pulse and respirations were normal.

Examination of the urine showed a specific gravity of 1.020, with a slight trace of albumin. The sediment was negative. The blood gave a red cell count of 4,300,000 with a hemoglobin of 75 per cent. The white cell count was 8400, 64 per cent polymorphonuclears. A lumbar puncture done before the patient's admission to this hospital is reported to have shown a clear colorless fluid; the pressure and total protein were not recorded. A test for globulin gave a 4+ reaction. The cell count was 2 per cu. mm. The spinal-fluid Wassermann test was negative. A blood Hinton test was negative.

X-rays of the skull showed definite enlargement of the left internal auditory canal. The canal was expanded throughout its entire length, the greatest enlargement being near the tip. There was no definite enlargement of the sella turcica. The clinoids were rather indistinct but showed no definite evidence of erosion.

During the succeeding week the patient showed no essential change in his condition. A craniotomy was performed on the eleventh hospital day.

Differential Diagnosis

Dr. Augustus S. Rose: If possible one would like to make a diagnosis of a single disease process. In this case, however, we are confronted with a process or processes which are sufficiently widespread to involve the central and peripheral nervous systems. There are very few such conditions.

The history, through symptoms of weakness and sensory disturbances, directs our attention at first to the peripheral nerves, but the physical examination shows signs of central involvement. The gradual onset of deafness with tinnitus, leading finally to complete nerve deafness, and followed by the loss of taste on the left side of the tongue and by loss of sensation on the left side of the face, with also the development of a facial asymmetry (presumably a left facial weakness), points strongly to a slowly growing tumor at the left pontine angle. The examination substantiated the history that there was loss of function of the left eighth, seventh and fifth nerves (although weakness of the face is not definitely stated). The suspicion of tumor is confirmed by the x-ray finding of enlargement of the internal auditory canal. With slow development and progression, the most likely tumor in this location is a neurofibroma, probably starting in the eighth nerve. If it is a single tumor involving all three nerves, then it is sufficiently large to explain the Babinski signs, headache, dizziness and vomiting. Involvement of the vestibular division of the eighth nerve would explain staggering to the left. Other lesions are necessary, however, to explain the subjective symptoms (not substantiated by examination) of weakness of the neck and extremities, sensory disturbances in the arms and legs, and absent tendon jerks. These are symptoms and signs associated with disease of peripheral nerves, especially when the jerks are absent on one side and present on the other. We are not informed as to the presence or absence of a palpable tumor in the skin or along the nerve trunks, or of pigmented spots on the skin, but neurofibromas are frequently multiple, and we wonder about von Récklinghausen's disease. Yet, we are led to believe that this patient drank beer to excess, and there is no reason why a person with an acoustic neuroma should not also develop a peripheral neuritis. No information is given, however, as to the patient's diet, and these symptoms have lasted at least two years. With peripheral neuritis of two years' duration, more objective motor disturbances, such as atrophy and profound weakness of certain muscle groups, would be expected. Neurofibromas produce symptoms only by compression, and when situated on peripheral nerves must attain considerable size before much degeneration of neurons occurs. Furthermore, it is difficult to conceive of tumors on the nerves causing disappearance of tendon jerks without other signs.

The laboratory data give only negative evidence. Without more information the diagnosis must remain: (1) left pontine angle tumor, probably an acoustic neuroma; (2) neurofibromatosis (?); (3) peripheral neuritis of unknown cause (?) and (4) old left brachial-plexus injury.

Preoperative Diagnosis

Left acoustic neuroma.

Dr. Rose's Diagnoses

Left pontine angle tumor, probably an acoustic neuroma.
Neurofibromatosis?
Peripheral neuritis of unknown cause?
Old left brachial-plexus injury.

Anatomic Diagnosis

Acoustic neuroma.

Pathological Discussion

Dr. Charles S. Kubik: Dr. Rose did well to concentrate on the evidence pointing to a tumor of the pontocerebellar angle. Operation disclosed an encapsulated tumor lying against the left side of the pons anterior to the cerebellum. Microscopic examination of the part removed showed it to be a neurofibroma. Considering the location one may be certain that it was a tumor of the acoustic nerve.

These tumors when they come to operation have a fairly uniform appearance. They are 4 cm. or so in length and about 3 cm. in diameter, and lie wedged against the side of the pons between the cerebellum and the posterior surface of the petrous pyramid. In all the cases which I have examined post mortem there has been extensive erosion of bone in the region of the internal acoustic meatus, with tumor extending into the inner ear. This erosion, it seems to me, has always been more extensive than it appeared in the x-ray films.

The fact that impairment of hearing and tinnitus have usually been present for several years before the onset of other symptoms may very well mean that the tumor starts near the labyrinth and extends into it long before it reaches any great size. That the deafness in this case, of twenty years' duration, was due to the tumor is, I believe, not at all impossible. The tinnitus eventually stopped, probably owing to destruction of the labyrinth or nerve.

Curiously enough the seventh nerve, which also passes through the internal meatus, is seldom completely paralyzed and may be affected only slightly. Sensory impairment on the face, usually present when the patient is seen by a neurologist, may be accounted for by the fact that the fifth nerve is stretched over the inner anterior pole of the tumor and its inner portion is compressed between the tumor and the pons. Then, too, there is pressure against the pons which may very well affect the fifth-nerve nucleus.

The so-called cerebellar signs probably result largely from pressure on the vestibular nucleus although pressure on the cerebellum is another possible factor.

The New England
Journal of Medicine

Formerly the
Boston Medical and Surgical Journal
Established in 1828

OWNED BY THE MASSACHUSETTS MEDICAL SOCIETY AND PUBLISHED UNDER THE JURISDICTION OF THE COMMITTEE ON PUBLICATIONS

Official Organ of
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THE NEW HAMPSHIRE MEDICAL SOCIETY
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SUBSCRIPTION TERMS: $6.00 per year in advance, postage paid, for the United States; Canada, $7.04 per year; $8.52 per year for all foreign countries belonging to the Postal Union.

MATERIAL for early publication should be received not later than noon on Saturday.

THE JOURNAL does not hold itself responsible for statements made by any contributor

COMMUNICATIONS should be addressed to the NEW ENGLAND JOURNAL OF MEDICINE, 8 Fenway, Boston, MASS.

GROUP HEALTH ASSOCIATION, INCORPORATED

CRITICISM that reveals hostility or prejudice is often ineffective.

An article prepared by the Bureau of Legal Medicine and Legislation of the American Medical Association in the October 2 issue of the *Journal of the American Medical Association* characterizes Group Health Association, Incorporated, as "unlicensed and unregulated health insurance and corporate practice of medicine" sponsored "morally and through a contract of such a character that neither the Federal Home Loan Bank Board nor Group Health Association is willing to make it public."

The article states:

> Its certificate of incorporation is a feebly disguised attempt on the part of the organizers to obtain authority for the association, without liability on the part of its members, to treat its members and their dependents, through hired servants and agents of the association, for any and all manner of disease and injury, and its so-called by-laws elaborate on that plan. This certainly constitutes the practice of medicine by the association, notwithstanding the fact that the association is not and cannot be licensed so to practice. . . . If and when Group Health Association begins to practice medicine as proposed in its certificate of incorporation and its by-laws, the United States District Attorney and the corporation counsel for the District, in pursuance of the duties of their respective offices that they have sworn to perform, will be bound to take action to enforce the law.
>
> From what has been said it is to be assumed that the attempt of the organizers of Group Health Association to incorporate is ineffective and that the members of the organization constitute only a voluntary association. . . .

In spite of this rather extreme view taken by the representatives of the American Medical Association, Group Health Association opened on October 30. The prospectus states:

> The aim of this plan is to make available to Federal employees in Washington, and to their families, adequate medical care, both preventive and curative; to provide this care at moderate cost; and to place that cost on a regular, budgetable basis within the means of the group to be served. If Federal employees are typical of the general population with equivalent incomes, many do not now obtain adequate medical care, especially preventive service and care in chronic conditions, while many others incur disastrous debts each year because of sickness costs. The provision of better care should promote health and well-being and reduce time lost from work because of illness. The plan should be of benefit not only to the employees and their families, but also to the Government they serve.

The form of application for membership offers the member the option of paying his dues personally or of assigning to the association so much of his salary, the payment to be made by the employer. Thus payment for the service may be made just as payments are made to most hospital service corporations. Apparently the writer in the *Journal of the American Medical Association* forgets the voluntary aspect of membership and choice of payment, for the article states:

> This establishes the check-off scheme sometimes employed to hinder defections from the ranks of organizations that fear difficulty in maintaining membership and to impose on the employer the burden that properly belongs to the organization of providing a collection agency. Under the check-off system, a member who finds membership no longer advantageous cannot quietly and without explanation cause his membership to be terminated by the simple expedient of omitting payment of dues. He must take affirmative action and resign from the organization, with danger of loss of social standing among his fellows, and he must notify his employer that his membership has been terminated, with the possible loss of esteem by his superior officers if the organization happens to be a pet scheme that they are promoting. . . .
>
> If Group Health Association succeeds in establishing the check-off system as a proper and lawful way of insuring the payment of the present and prospective debts of government employees, it will undoubtedly prove a boon to labor unions, finance corporations, merchants who do business on the instalment plan, landlords and others, who under the law cannot attach or garnishee the salary of an employee of the federal government but who will be able to protect themselves in advance by demanding assignments of federal salaries as securities for debts. If Group Health Association is going to have the check-off system adopted by the federal government for its benefit, there is no reason why any and every other person, whether individual or corporate, may not claim the same privilege.

Such comment is so irrelevant that it can have but little force.

Forgetting the principles relating to sickness insurance adopted by the House of Delegates of the American Medical Association in 1934, the seventh of which states that "medical service must have no connection with any cash benefits," the article comments:

> The association does not undertake to indemnify its members in cash, which would help the member to provide himself and his dependents, in time of sickness and in time of health, with the necessaries of life, including medical service, but to indemnify him only in medical and hospital services, . . .

And then the article resorts to the following extraordinary line of reasoning:

> Under the scheme proposed by Group Health Association, far greater benefits will accrue to the richer and more liberally paid employees of the Federal Home Loan Bank Board and its affiliates and of such other government agencies as may identify themselves with the scheme than to employees of more meager resources. The scheme is so planned that the richer and more liberally paid employees are to obtain medical services at rates based on the incomes of the poorest employees. The courts have repeatedly held that the value of medical services rendered to a patient may be properly appraised in relation to his wealth, just as the value of the interests that the lawyer is called on to protect, whether interests involving the life of his client or his client's property. Under the present scheme, fees that are charged for medical services to the richer and more liberally paid employees are to be identical with those charged employees of the lowest grade, doing part-time work. The richer and more highly paid and influential employees are therefore to gain the most financially by this scheme. Nothing in the certificate of incorporation or by-laws assures to those lower in the ranks that they will receive the same quantity and class of medical service as that provided for their superiors.

And, in another place it is stated:

> Especially would quality be likely to fail in times of epidemics and of any unusual prevalence of disease, when the limited medical staff of the association would be overworked and could find no relief.

One might comment that the courts do not demand that patients voluntarily pay according to their wealth. Payments under hospital service corporations or any form of insurance policy are not appraised in relation to wealth and are not illegal. There is nothing in the certificate of incorporation that says that those of lower rank will receive poorer service. In times of epidemic it seems likely that the quality of other medical services also would fail.

There appears to be much in the attitude and substance of the article quoted that reflects a prejudice that has interfered with judgment. If the charge of illegality cannot be sustained it is useless. Too many educational and other institutions have indulged in the so-called corporate practice of medicine to make applicability of this point of law likely. The irrelevance of most of the criticism of this attack on a medical scheme which may be viewed critically by many of the profession renders it ineffectual. Had Group Health Association adhered to the principles that have successfully guided hospital service corporations, the relation of doctor to patient and patient to hos-

pital could have been left almost unchanged, the liabilities incident to payment of physicians' salaries and hospital fees would not have been directly incurred by the association, and the members might have had free choice of physicians and hospitals, and thus the services of all the physicians and all the hospitals of Washington, at their service. With these possibilities at hand the wisdom of the association's actions might well have been questioned effectively.

It is almost inevitable that many plans and laws concerning medical service will be presented in the next few years. The manner in which the interests of the medical profession in relation to such matters is represented is of vital importance to physicians.

PNEUMONIA PUBLICITY

A LETTER published in this issue of the *Journal* announces that the Massachusetts Department of Public Health is going before the public with information in regard to the serum treatment of pneumonia. This is an opportune time for such publicity. The pneumonia season is just beginning, and during the next few weeks more than thirty residents of Massachusetts will contract lobar pneumonia each day. More than twenty of these individuals will be ill of pneumonia of types for which serum treatment is available. Serum can save the lives of some of them and ameliorate the symptoms in a good many others.

Massachusetts was, of course, one of the first states to plan a concerted program to save the lives of those stricken with pneumonia. A recent issue of the *Commonhealth* contained the report of the five-year pneumonia program which had been carried on in Massachusetts. This pioneer work has stimulated interest in many parts of the country and at the present time nineteen states have adopted some kind of a pneumonia program and ten others are on the point of doing so.

Up to the present time very little publicity in regard to this program has been going directly to the people of the State. Most of the information has been directed to the medical profession. Because of the widespread interest in the subject, articles are beginning to appear in national periodicals. Many of these are being read by laymen. For this reason it would seem to be an opportune time to place accurate facts in regard to the subject before the people of the Commonwealth.

MASSACHUSETTS MEDICAL SOCIETY

STATED MEETING OF THE COUNCIL

A stated meeting of the Council will be held in John Ware Hall, Boston Medical Library, 8 Fenway, on Wednesday, February 2, at 10:30 a. m.

Business:

1. Call to order at 10:30 a. m.
2. Reading record of last meeting in abstract (published in detail in the *New England Journal of Medicine,* October 28, 1937).
3. Obituaries of Councilors who have died since the last meeting.
4. Report of Auditing Committee and of Treasurer.
5. Reports of standing committees.
6. Reports of special committees.
7. Appointment of new committees.
8. Appointment of delegates:
   (a) To the House of Delegates, American Medical Association, for two years from June 1, 1938.
   (b) To the annual meetings of the five New England state medical societies in 1938.
   (c) To the Annual Congress on Medical Education and Licensure of the American Medical Association at the Palmer House, Chicago, February 14 and 15, 1938.
9. Incidental business.

Councilors are asked to sign one of the two attendance books before the meeting. The Cotting Luncheon will be served immediately after the meeting.

ALEXANDER S. BEGG, *Secretary.*

SECTION OF OBSTETRICS AND GYNECOLOGY

M. FLETCHER EADES, M.D., *Secretary*
19 Bay State Road
Boston

CASE HISTORY NO. 55. BLEEDING AT EIGHT MONTHS OF PREGNANCY

Mrs. P. F., a twenty-eight-year-old primigravida was readmitted to the hospital on October 8, 1937,

A series of selected case histories by members of the section will be published weekly.
Comments and questions by subscribers are solicited and will be discussed by members of the section.

in the eighth month of gestation, because of the recurrence of painless vaginal bleeding.

There was no family history of carcinoma, pulmonary tuberculosis, diabetes or nephritis. As a child, the patient had had measles and mumps. At the age of seven her tonsils and adenoids were removed. Catamenia began at twelve with a regular twenty-eight-day cycle, lasting four days. The last menstrual period began on February 1, 1937.

The antenatal course was uneventful until September 12, 1937, at which time she was admitted in the seventh month of gestation because of painless vaginal bleeding. At this time a suitable blood donor was procured. Sexual congress had immediately preceded the onset of bleeding. During her hospital stay she stained for the first two days only, and was discharged at the end of one week. The impression was that the patient had a placenta previa but because the bleeding had stopped, she was discharged to be observed in the prenatal clinic.

Following this the patient was seen in the prenatal clinic on two occasions. The blood pressure had a tendency to be high, averaging 140 systolic and 85 diastolic. The fetal heart sounds were normal. Examination of the urine revealed no albumin or casts. The total gain in weight amounted to 18 lb.

When admitted to the hospital at 9 a. m., the patient stated that she had flowed very freely early in the morning, but she was staining very moderately when she arrived. She had no abdominal pains or cramps and denied any local trauma. Examination revealed a well-developed and nourished young woman. The temperature was 98.6°F.; the pulse 84; and the respirations 20. The pupils reacted to light and accommodation. The teeth were in good repair, and oral hygiene was good. The nasal passages were clear. The tonsils had been cleanly removed. The thyroid was not palpable. The heart was normal in size; the sounds were regular and clear, without murmurs. The blood pressure was 138 systolic and 80 diastolic. The lungs were normal to percussion and auscultation. The fundus of the uterus was seven finger-breadths above the umbilicus, and the uterus was soft. The fetus was presenting by the vertex. The fetal heart sounds were not heard. Staining continued throughout the morning. At 2 p. m. she began to have mild labor pains at seven- to ten-minute intervals, and the vaginal bleeding increased. At 3 p. m. the mild labor pains continued at five- to seven-minute intervals, with a slow continuous loss of blood. A rectal examination revealed a thick uneffaced cervix, which admitted the width of one and a half fingers. The head was just above the ischial spines. In view of the findings, it was felt that the baby was dead, and it was deemed advisable to control the bleeding and to hasten delivery from below.

Under nitrous-oxide and oxygen anesthesia, vaginal examination confirmed the rectal findings, and in addition, the edge of the placenta could be felt implanted posteriorly and low down in the lower uterine segment. The membranes were ruptured artificially, a Number 5 Voorhees's bag was inserted, and a 5-lb. weight attached to the stem. A sixth of a grain of morphine sulfate was given hypodermically, and the patient was returned to the labor room not bleeding and in good condition. Four hours later the bag was expelled, and a stillborn nonmacerated fetus delivered spontaneously immediately afterward. The perineum remained intact, and the secundines were expressed complete five minutes later. The total loss of blood at the delivery did not exceed 300 cc. Examination of the placenta revealed a small adherent blood clot at one margin which was in all probability the part felt low down in the lower segment; but in addition there was an old black adherent circular clot about 7 cm. in diameter and 4 cm. in depth in the center of the placenta. On removal of this blood clot, the typical depression in the placenta could be seen. This settled the diagnosis, namely a partially separated placenta, and explained the cause of the dead fetus. In addition, the patient had a low implantation of the placenta.

The puerperium was entirely uneventful. The uterus involuted normally. The blood pressure averaged 124 systolic and 80 diastolic. Two specimens of urine showed a trace of albumin, and a third and last specimen was entirely normal. The patient was discharged on the twelfth day in good condition.

Comment. This case from the history of painless bleeding at the onset suggested placenta previa. The soft abdomen also favored this diagnosis. The bleeding in the seventh month, at the time of the patient's first admission to the hospital, was apparently due to a slight separation of the placenta, a blood clot being formed which stopped the bleeding and allowed the pregnancy to continue until the next bleeding episode.

Conservative treatment, as was followed in this case, is indicated when the baby is dead and when there is no evidence of placental apoplexy (Couvelaire uterus).

COLDS AND WHAT TO DO FOR THEM

Most people look on a cold as a nuisance rather than an illness which should be treated. They would not miss work for "such a little thing as a cold in the head," still

A "Green Lights to Health" broadcast given by Dr. George P. Reynolds on Wednesday, December 29, and sponsored by the Public Education Committee of the Massachusetts Medical Society and the Massachusetts Department of Public Health.

less would they think of giving up any fun on account of it. Yet statistics show that of all the minor ailments which make a person ill enough to have to stay away from work, the common cold is by far the most frequent. Moreover, colds — especially neglected colds — are often the forerunners of more serious illnesses, such as infections of the ear, the mastoids and the sinuses, and all too frequently bronchitis and pneumonia. So we should seriously consider the question, What should be done about a cold?

But before we can intelligently answer this we must know some rather elementary but important facts about the disease we are discussing. First of all, What is a cold? It is an infection of the upper air passages, by which we mean the nose and throat. What causes this infection? The answer is, Many different kinds of bacteria, or as they are commonly called "germs" — tiny living organisms, so small that under a powerful microscope they look like dots or dashes, but each one alive and capable of multiplying and of destroying human tissues. They are parasites and live in the human body just as a flea is a parasite that lives on a dog. They not only damage the mucous membrane which forms the lining of the nose and throat, but they send off poisons — called toxins — which affect the whole body and make the individual who harbors them feel sick all over.

If, then, these cold germs are so powerful and so damaging, what keeps them from going right on multiplying, spreading, eating and poisoning until they have destroyed the whole body? The answer is that the human body has, at all times, certain natural powers of resistance which act as a defense against these invaders, just as nations have armies to defend them against their enemies. Every cold may be looked upon as a battle between the invading army of germs and the defending powers of the body. The germs get a foothold because they make a surprise attack when the body has only its standing army — in other words, its ordinary powers of resistance — to defend it. But the body has reserves which it can call upon, and almost at once it begins to increase and strengthen its defenses, and so, under ordinary circumstances, it is soon able to overpower the germs and kill them off. If, however, the ordinary defenses are weaker than they should be, the germs may get a strong foothold, and if the reserves are not up to standard, the invaders may spread and become so numerous and firmly entrenched that it takes a long time and a hard-fought battle to eliminate them. Thus, we see that the two most important factors in defense against colds are, first, to maintain a good standing army of defense by keeping in good condition, and secondly, when the battle is on, or when the cold has started, to do everything possible to hasten the mobilization of the reserves. Every time you get rundown and tired, whether it be through overwork or sitting up too late, you lower your natural powers of resistance. When you feel a cold coming on is the best possible time to treat it, because by so doing you can most effectively and quickly mobilize the necessary additional defenses and so overcome the invaders before they have become too powerful.

With this conception of colds as a struggle between infection and resistance in mind, we are now ready to consider the question, What should be done about them? We have already suggested two answers. Let me state them more clearly. First, keep in good general condition, because by so doing you make yourself less susceptible to cold infections. Secondly, as soon as you realize that the infection has set in, treat it promptly, so as to try to overcome it before it is too firmly established. The essentials of this early treatment are three in number: (1) as much rest as possible, (2) drinking larger amounts of water to promote elimination of the poisons which the germs give off and (3) a laxative, if necessary, for the same reason, but do not upset normal digestive action by taking too much or taking it too often. The next rule is to avoid, so far as possible, exposing yourself to these germs unnecessarily. We cannot live entirely isolated from our fellow men, but undoubtedly the chief source of these germs is the air passages of people who have colds, and every time we get into a crowd of people the chances are that someone in the crowd is harboring cold germs — especially at this time of year. So do not go to the movies or to other large gatherings too often during the cold season, or since I know you will go, at least realize that by so doing you are exposing yourself. A more practical bit of advice, and one that you may, perhaps, be more likely to follow, is: when you know that a person has a cold, keep several feet away from him as much of the time as possible. If you must talk business with him, try to sit on the other side of the room. If your work necessitates being near him, try to avoid having him breathe directly at you. And when you have a cold, try to protect the other fellow by keeping at a distance, by coughing or sneezing into a handkerchief, and by not choosing that particular time to go to visit people, especially those who you know catch colds easily or who are delicate.

To summarize what I have said: a cold is an infection of the nose and throat; it is caused by germs that live in human air passages, that destroy human tissues, and that send off poisons; the human body has always a standing army of resistance against these invaders, and reserves which can be mobilized in a few days to add to this army. The important rules regarding colds are: (1) keep in good general condition, and so maintain your resistance; (2) avoid exposing yourself to colds; (3) if you catch a cold, treat it early by rest, and by elimination; (4) safeguard others against catching your cold by keeping as far as possible away from them, especially the susceptible ones.

Q. Would you explain to me just how these germs come to us, how we get them into our air passages?

A. Through breathing in air that someone with a cold has recently breathed out; in other words, the cold germs are passed from one person to another through the air we breathe.

Q. Can we get them from the air in an empty room in which someone with a cold was, let us say, an hour ago?

A. Conceivably, but it is very unlikely. Cold germs do not live long in the air, especially if there is sunlight and reasonably good ventilation.

Q. But people do not often breathe in each others' faces, do they?

A. Much more often than we realize. In kissing, in caring for a child or a sick person or in ordinary conversation there is a great deal of breathing of secondhand air. In fact, if you watch how far cigarette smoke will travel from the smoker you will realize that you do not even have to be near a person to breathe the air that he has had in his air passages. And, of course, a cough or sneeze from a person with a cold adds force and distance to the ordinary breath, which is literally teeming with cold germs.

Q. But I always thought one caught cold from sitting in a draft, or watching a football game on a cold day, or getting one's feet wet — do not such things cause colds?

A. Exposure, getting chilled or wet, and the like, all

tend to lower the resistance of the body, and if we already have the germs in our air passages or receive them at such a time, they are more likely to gain a foothold because of the lowered resistance — the weakened condition of the standing army of defense.

Q. I see. But why is it that some people always seem to get colds, while others very seldom do?

A. Again it is a question of natural powers of resistance. Those who are unusually subject to colds have less than the normal defense against germs. This may be due to poor general condition, to general fatigue or to some local condition in the nose or throat which impairs the local defenses in that region.

Q. You spoke of the desirability of treating a cold when one first feels its coming on. What is the best thing to do at that time?

A. First, if possible, go home and go to bed at once. Secondly, drink all the water and fruit juices you can.

Q. But what if it is impossible to go to bed? If you have housework to do, or children to care for, or a job that must be done, you cannot go to bed.

A. Drink plenty of water, take things as easily as possible, get to bed early, get all the sleep you can, and try to avoid giving the cold to those with whom you come in contact.

Q. My experience with small children has been that when they have colds it is almost impossible to get them to drink anything. They are fretful and restless, and just cry and say, "No" whenever I try to make them take even a sip. What *can* you do?

A. Yes, it is often very difficult to make a sick child take fluids. Usually if you can persuade them to taste a little bit of something pleasant, they will want more. But they are so uncomfortable and often so nauseated that, as you say, they refuse the first sip, and scolding or punishment for a sick child only makes matters worse. Sometimes quiet persuasion will be effective, but one trick is always worth trying. All children like sweets, and even when they are sick will seldom refuse a lump of sugar or a small piece of simple barley candy. This tends to make them thirsty, and if they are offered a drink a few minutes later they will often take it quite readily.

Q. You speak of rest as one of the most important elements in the treatment of colds. What about the theory of working off a cold by taking strenuous exercise?

A. I believe that it usually does more harm than good. When one is battling against an infection, one tires easily, and violent exercise often results in an exhaustion which greatly depletes the powers of resistance.

Q. What type of medicines do you recommend for colds? Are there not antiseptics which will kill off these germs in the nose and throat?

A. There is no antiseptic that is strong enough to kill germs that is not at the same time strong enough to damage the human tissues on which they are found. Therefore, the only medicines that we can use safely are those that are *mildly* antiseptic and so *discourage* the growth of germs rather than kill them off, or those that are soothing to the mucous membranes and so help to maintain their powers of resistance. But, though these may help somewhat, and often make the patient feel more comfortable, really the most important thing to take is plenty of fluid — water, lemonade, orange juice, and so on; a little milk is all right, but too much is apt to be constipating and is therefore undesirable.

Q. When are colds most contagious, and how long are they contagious?

A. They are probably most contagious at the very beginning. In the first place, the germs are then most numerous, and the body has not yet developed its powers of resistance sufficiently to begin to kill them off or weaken their strength. In the second place, the first day or two of a cold is the time when there is the most sneezing and coughing, and therefore the greatest spread of germs through the air. A cold remains contagious as long as there are any germs in the nose and throat, in other words, as long as any signs of the cold persist; but it is certainly less catching in the later stages, because there are fewer germs and those that have survived are weaker.

Q. What can be done to avoid spreading colds in a family?

A. Do not breathe in each other's faces, and teach the children *and* the adults to cover their faces with a handkerchief when they cough or sneeze. If you have a cold and must take care of the baby, tie a handkerchief or piece of gauze over your nose and mouth and keep it there so long as you are in the room with him.

Q. I shall try to remember these answers; and finally, tell me again the best way of avoiding catching cold?

A. Keep out of crowded places as much as you can during the season when colds are common. And avoid fatigue, exposure and lack of sleep — in short, anything that lowers resistance.

MISCELLANY

BULLETIN OF GENITOINFECTIOUS DISEASES

The Massachusetts Department of Public Health, in cooperation with the United States Public Health Service, is sponsoring and distributing the new *Bulletin of Genito-Infectious Diseases*, edited by the Massachusetts Society for Social Hygiene. The first issue appeared in September, 1937.

With discussion of genitoinfectious diseases for the first time in history no longer suppressed by newspapers and magazines, and with the United States, under the leadership of Surgeon General Parran, engaged in a campaign for the control of gonorrhea and syphilis, every such effort is valuable and timely. Education is the mightiest weapon against these diseases, and education can come only with the freest publicity. If any slogan were necessary for this modern crusade, it might well be, "Ye shall know the truth and the truth shall make you free."

MOTOR VEHICLE DEATHS FOR 1937

Motor vehicle deaths in 128 major cities increased 7 per cent in 1937 over the previous year, according to reports recently made public by Director William L. Austin, Bureau of the Census, Department of Commerce. Deaths for 1937 totaled 9964, compared with 9308 for 1936, an increase of 656. A major part of the 1937 increase occurred during the first six months of the year. Deaths for this six-month period exceeded the first six months of 1936 by more than 17 per cent. During the latter part of the year motor-vehicle deaths were not essentially higher than for the corresponding period of 1936.

Considering only those deaths in each city due to motor vehicle accidents occurring in the city, the 1937 reports show a total of 7116 deaths. This 1937 figure is an increase of 326 deaths, or 4.8 per cent, over the 6790 deaths

reported for the same 128 cities in 1936. The increase in the total is reflected in the individual cities, 66 of which showed an increase in the deaths over last year. Fifty-seven cities showed decreases, and 5 cities had the same number of motor vehicle deaths in 1937 as in 1936.

This report gives data for 128 cities, many of which have a relatively small number of motor vehicle deaths in a year. For these smaller cities, the percentage increase or decrease will fluctuate widely from year to year, and the figures in this report do not, therefore, indicate consistent trends. For the large cities of 500,000 or more population, the following percentage changes occurred for 1937: New York, increase 3.5 per cent; Chicago, increase 6.2 per cent; Detroit, decrease 6.2 per cent; Los Angeles, increase 9.7 per cent; Cleveland, increase 14.1 per cent; St. Louis, decrease 1.7 per cent; Baltimore, increase 17.2 per cent; Boston, decrease 3.7 per cent; Pittsburgh, decrease 5.5 per cent; San Francisco, increase 22.2 per cent; Milwaukee, decrease 4.5 per cent; Buffalo, increase 30.5 per cent; Washington, increase 17.6 per cent. — *U. S. Department of Commerce.*

"BEHIND THE SHADOWS"

Medical societies building their programs and desiring to show the motion picture in sound entitled, "Behind the Shadows," may arrange for film, projector and operator at no cost through the Massachusetts Tuberculosis League, 1148 Little Building, Boston.

This fifteen-minute picture is not offered to medical societies for clinical teaching purposes but to show how high-school pupils and their parents are led to give consent for the school chest clinics. It fits in well with a program in which at least one speaker deals with tuberculosis.

CORRESPONDENCE

LAY PUBLICITY CONCERNING SERUM TREATMENT OF PNEUMONIA

To the Editor: The Department of Public Health is planning to carry on a publicity campaign in regard to the treatment of pneumonia with specific serums. This is the first venture of the department into widespread publicity on this matter directed to the public. Up to the present time, such information has been sent primarily to the medical profession, and in only a small way has an attempt been made to educate the public upon this important subject. It has been felt that it would be inopportune to develop a public demand for serum before a reasonable number of physicians had adopted its use.

Only recently have the facilities been available so that a physician in any part of the State could easily arrange to treat his patients with specific serums. Now, however, there are typing laboratories in every part of the State to which sputum samples can be taken for the typing of pneumococci. Serum for treating Type-I cases is available in practically all these laboratories, and serums for some of the higher types can be obtained at certain strategic locations. It is possible, therefore, at the present time for any physician in the State to arrange to have typing done on his patients and to obtain free serum for the treatment of Types I, II, V and VII. It is probable that serum for Type VIII will be available in the near future.

As many avenues as possible will be used to convey accurate information in regard to this subject to the citizens of the State. An excellent film entitled, "A New Day," sponsored by the United States Public Health Service and made available to the department by the Metropolitan Life Insurance Company, will be shown on the screen of a large number of motion picture theaters throughout the State. This film depicts very dramatically the treatment of a case of pneumonia, and from a medical point of view is quite well done. If it receives a large showing, it should be the means of bringing many cases of pneumonia to the attention of physicians early in the disease instead of late as so frequently happens. If a large number of such individuals receive serum treatment immediately, the saving of many lives should result. It is hoped that a large number of the medical profession will have an opportunity to see this film so that they may know the kind of information which is coming to their patients.

The film will be continually mentioned in the publicity which goes out over the radio and through the newspapers and other periodicals published in the State. Arrangements are also being made to supply speakers to various organizations which wish to have this subject presented to them.

HENRY D. CHADWICK, M.D.,
Commissioner of Public Health.
State House,
Boston.

TUBERCULOSIS DEATH RATES

To the Editor: I should like to make a correction in my article entitled "The Prevention and Control of Tuberculosis in the Commonwealth of Massachusetts," published in the *New England Journal of Medicine,* September 2, 1937, and also to comment on the use of death rates from tuberculosis in different cities for comparative purposes.

With respect to the correction, in my article attention was called to a death rate from tuberculosis among Whites in Boston of 65 per 100,000 for the year 1935. It was, as indicated in a footnote, "corrected for residence," which means an exclusion of deaths within the city of nonresidents and the inclusion of residents known to have died outside the city.

In a table compiled by G. J. Drolet, the tuberculosis mortality among Whites for 1935 is given for forty-three American cities and among them that for Boston as 71. In his table no correction is made by the exclusion of deaths, within the city, of nonresidents. The explanation is offered for thirty-three of the forty-three cities that the figures are inclusive of residents known to have died outside the city.

In the article in question, the tuberculosis death rate of 65 in Boston is compared with Drolet's figures for other cities. Inasmuch as the death rate of 65 is corrected both by the exclusion of deaths, within the city, of nonresidents and the inclusion of residents known to have died outside the city, and Drolet's death rates are corrected only by the inclusion of known out-of-town deaths, the figures are not comparable.

Having made this explanation, I should like to comment on the use of death rates from tuberculosis in different cities for comparative purposes.

Drolet's tables, compiled each year, have been useful in affording an estimate of the trend from year to year in each city where the conditions may be presumed to be fairly constant, and it is encouraging to note that in his compilation of the net tuberculosis death rates for both Whites and Negroes of forty large American cities during 1935 and 1936 the death rate for Boston has fallen from 69 in 1935 to 63 in 1936. This is especially encouraging as it represents a fall of 9 per cent as compared with an average increase of 2 per cent for the forty cities.

In the comparison of the net tuberculosis death rates for 1936 in fourteen cities of 500,000 population and over in Drolet's table, Boston stands in sixth place. Three of the

cities with lower death rates than Boston do not have interchange of copies of death certificates with other cities and towns in their states.

Drolet's tables have seemed useful in estimating the relative standing of a large number of representative cities. The Boston Health Department has, however, questioned the reliability of such a comparison and permits me to refer to data collected in the course of a canvass of thirty-seven cities. From this inquiry it appears that twenty-seven of the thirty-seven cities have no interchange of copies of death certificates with other cities and that, in consequence, the number of deaths of residents taking place outside the city is open to question and that failure to record all out-of-town deaths of residents gives the city an apparent advantage over cities subject to interchange of copies of death certificates.

There is in Massachusetts a statute law requiring each town clerk to make a certified copy of the record of each death, if the deceased were a resident of any other town in the Commonwealth or of any other state at the time of death, and transmit it to the clerk of the town where the deceased was so resident. In accordance with this requirement, correction is made by towns in Massachusetts with respect to deaths from tuberculosis of residents dying elsewhere in the State by an interchange of copies of death certificates.

In the absence of reciprocal agreements for interchange of death certificates among the states of the Union, there is no assurance in the country as a whole that deaths occurring outside a state of residents of the state will be recorded at the place of residence. Though Massachusetts towns are required to make notification to towns in other states, the death of a resident of Massachusetts in another state may not be recorded in Massachusetts.

Insofar as deaths of residents of a state occurring elsewhere are not recorded against the state, the death rate for the state in question will be lowered.

In the absence of a statute law requiring interchange of copies of death certificates by city or town clerks within the state, deaths of residents of a city occurring elsewhere in the state may not be recorded against the city and the death rate for the city will be lowered.

To what extent the lack of a nation-wide system of reallocation of deaths affects the recorded death rates cannot be estimated. Failure to interchange copies of death certificates between cities in different states may be assumed to be of less importance in this connection than between cities within the state. In addition, the location of tuberculosis institutions, age distribution and racial composition complicate the problem of the comparison.

These considerations have a bearing on the attempt to rank Boston among other cities with respect to death rates from tuberculosis. They suggest, and I am grateful to the Health Department for calling my attention to the matter, that so far as all deaths of residents occurring elsewhere are not recorded in all cities, the use of death rates for comparative purposes is unsound.

This objection does not apply to death rates in each city from year to year and attention may again be called to the gratifying reduction in the tuberculosis death rate in Boston for 1936 as compared with 1935.

FREDERICK T. LORD, M.D.

305 Beacon Street,
Boston.

* * *

To the Editor: I enjoyed reading, in the September 2, 1937, issue, the informative presentation made by Dr. Lord on the prevention and control of tuberculosis in Massachusetts.

My attention has since been drawn to the observations of Dr. Charles F. Wilinsky that in the comparison of tuberculosis death rates in different cities, especially when an attempt is made to take into account deaths of their residents which occur out-of-town, as frequently takes place in tuberculosis, varying practices and statutory requirements to permit "correction for residence" invalidate comparisons since such returns may be incomplete or not obtainable; in particular, that the annual survey of tuberculosis mortality in the large cities of the United States, which I have been conducting for some time based on direct reports from the various health commissioners, may thereby be affected and that the assignment of Boston at a certain place in the list may be unwarranted.

May I say that my survey, while depending mostly upon information received from the city health commissioners, has not necessarily been limited to their records or to practices for the filing of certificates. Originally I undertook this annual tabulation because of the obvious incompleteness of local returns of tuberculosis mortality, especially when municipal or state institutions outside the communities took care, as they often do, of a large number of patients.

My surveys have, therefore, not been dependent solely upon the local or legal requirements for the interchange of death certificates. First of all, I have ascertained directly in each place the deaths reported there among their own residents and the known nonresidents. Secondly, realizing that it was mostly in out-of-town sanatoriums and hospitals that additional deaths from tuberculosis occurred, I have, from my knowledge of institutional facilities in this country, secured reports as to the deaths therein of the residents of the communities they serve. Also, frequently the commissioners themselves have gone out of their way to ascertain interesting additional information. Naturally this condition of available beds outside the city for the care of patients is a variable one — important in places like Minneapolis, and unimportant in San Francisco and in other places where all institutional facilities are within the community. In Minneapolis, the tuberculosis deaths reported as occurring locally in 1936 numbered only 72, but I also ascertained that 98 residents of that city died at the Glen Lake Sanatorium nearby and 16 at the United States Veterans' Hospital at Fort Snelling.

Dr. Wilinsky, in another communication available to me, noted that the resident death rate of Boston (63) in 1936 was higher than that of San Francisco and Chicago at 62, Buffalo at 61, Detroit at 58, Pittsburgh at 51 and Milwaukee at 48, and that "none of the cities having a lower tuberculosis death rate have an interchange of copies of death certificates with other cities or towns in their resident states, with the exception of Detroit." True, had I been at the mercy of legal requirements my information for these communities would have been incomplete, but I did find also that, in 1936, besides 1946 deaths within Chicago, 221 of its residents died outside the city as follows: in the United States Veterans' Bureau hospitals, 89; at Winfield Sanatorium, 1; at Edward Sanatorium, Naperville, 1; at the Cook County Tuberculosis Hospital, Oak Forest, 130. And, for Buffalo, I found that 40 of their residents died "out-of-town" at the J. N. Adam Hospital, Perrysburg and in other cities. Of Milwaukee residents, 160 died at the Muirdale Sanatorium, Wauwatosa, and 147 Detroit residents died "at Eloise; Hamtramck; Wyandotte; Maybury Sanatorium, Northville; miscellaneous Wayne County villages; state asylums and homes for feeble-minded; state prisons; American Legion

Hospital, Battle Creek; and, in miscellaneous institutions." From these data, therefore, I am inclined to believe that the comparison of these cities with Boston is fair since I was also informed by the Health Department of that city that "from a special survey" they knew of 82 deaths "in various places." I am, however, pleased to note that in 1936 the death rate of Boston residents, 63 per 100,000 population, was 9 per cent lower than that of the year previous, and that this decline was registered at a time when in general the tuberculosis death rate was stationary or even going up in other cities.

One of the main purposes of my survey has been to bring to the attention of those interested in tuberculosis and of the registration authorities the need of a national interchange of death certificates so that proper correction for residence can be made. Even granting the difficulty of securing a complete tracing of all the out-of-town deaths of the residents of the communities studied, it must be admitted that the survey, which has been conducted with increasing efficiency over a period of years, furnishes at the present time the only fairly close approximation to the real mortality record of the large cities of the United States.

Tuberculosis, still taking so many people in the prime of life, does seem to me to remain a sufficiently serious condition that we may forget the minor question whether the death rate is one or two points more here or there. We should, instead, concentrate on attaining, as I know the authorities in Massachusetts particularly are earnestly striving to do, a real control and eradication of the disease.

I should like to add gratefully, in disagreeing slightly with Dr. Wilinsky as to the completeness of my annual tuberculosis survey, that here in New York City, in our development of district health centers, we have on several instances been greatly assisted by his wide experience and wise counsel; also, that on prized occasions we have been deeply inspired by the remarkable antituberculosis work and program of the Commonwealth's Commissioner of Public Health, Dr. Chadwick.

G. J. Drolet.

New York Tuberculosis and Health Association, Inc.,
386 Fourth Avenue,
New York City.

RECENT DEATH

CLARK — Sidney A. Clark, M.D., of 188 Bridge Street, Northampton, died January 14. He was in his seventy-third year.

A native of Northampton, he received his early education in the local schools, later attending Amherst College from which he graduated in 1888. He received his medical degree from Harvard Medical School. For many years he maintained an office in Northampton being the oldest practicing physician of that city at the time of his death.

Dr. Clark was a fellow of the Massachusetts Medical Society and the American Medical Association, and held memberships in several Masonic bodies, the Northampton Lodge of Elks and the Kiwanis Club.

His widow and a daughter survive him.

REPORTS OF MEETINGS

BOSTON UNIVERSITY MEDICAL SOCIETY

A meeting of the Boston University Medical Society was held on November 29. The meeting was opened by the presentation of a case. The patient was an 85-year-old female who had been brought into the hospital because of a very slow pulse rate. Physical examination showed a well-marked generalized arteriosclerosis and bilateral cataracts. There was distention of the neck veins, and they pulsated at a very fast rate. The apex rate was 40 beats per minute. Dull sounds could be heard between the slow regular beats of the ventricles. Electrocardiographic studies were made, and by putting the exploring electrode over the region of the auricles, the P waves could be brought out more clearly. These tracings showed the patient to have auricular flutter. The patient was given atropine, and due to a paralysis of the vagus, the rate was increased to 90, but there was still complete block. Following this the patient began to have auricular fibrillation — a very unusual effect of this drug.

Dr. Herrman L. Blumgart spoke on cardiac pain, beginning with a brief historical introduction of the subject. The essential characteristics of cardiac pain, its location and radiation, and the various factors which determine these symptoms were discussed. The physiologic pathology of the condition and the pathological findings in patients with cardiac pain were reviewed. The particular characteristics of cardiac pain in patients with rheumatic heart disease, coronary arteriosclerosis, cardiovascular syphilis and arrhythmia of the heart were pointed out. The importance of emotional factors was discussed. Difficulties underlying differentiation from other conditions were particularly stressed, and a brief résumé of treatment was given.

Dr. Pratt discussed the paper briefly from a physiological point of view. It was brought out that the use of nitroglycerin is not a sure test for angina pectoris because it relieves many other types of pain and does not always relieve angina pectoris. It is important to use the subcutaneous type of nitroglycerin tablets because they dissolve more rapidly in the mouth.

COMBINED MEETING OF THE SUFFOLK DISTRICT MEDICAL SOCIETY AND THE BOSTON ORTHOPEDIC CLUB

A combined meeting of the Suffolk District Medical Society and the Boston Orthopedic Club was held on November 17 at the Boston Medical Library. Dr. Brewster of the Boston Orthopedic Club presided at the meeting, which was a symposium on pain.

Dr. Hallowell Davis was the first speaker of the evening and talked on the modern physiological concepts of pain. He discussed the various types of pain and pointed out that there are two kinds of nerve fibers that carry painful sensations. The first type is made up of well-myelinated nerve fibers, over which impulses travel rapidly; these fibers carry sharp pain, the type that makes one respond quickly. The other kind of nerve fibers are either very thinly myelinated or non-myelinated. They carry dull aching sensations and low-grade pains, which probably arise from chemical changes in the surrounding tissues. The rate of travel of the sensation over this type of fiber is much slower than that of those previously described.

Dr. Chester M. Jones spoke on the diagnostic aspects of pain in the thorax and abdomen. He stressed the importance of a careful history and the necessity of eliciting the exact quality and precise location of the pain. He discussed, in particular, referred pain and defined this as pain which is set up in a viscus or on a serous surface and which is referred via the spinal cord to the corresponding somatic nerve, and thence to its segmental distribution. Referred pains are usually well localized and may be de-

scribed as dull, gnawing or burning, or as frank pain. The threshold for this type of pain, as in any type of pain, varies greatly in different people. Referred pain is superficial and may cause a localized hyperesthesia, and it may be blocked by local novocain infiltration. Dr. Jones has made a special study of pain referred from the gastrointestinal tract. He studied the areas of reference of pain caused by balloons distended at different levels in the gastrointestinal tract. In general it may be said that pain referred from this system is in the midline, except for that which arises in the hepatic flexure, the splenic flexure and the cecum, and in some people, in the sigmoid. Pain referred from the esophagus is in the midline and in general at the same level as the lesion. Painful lesions of the stomach are referred to a point high in the midepigastrium. The duodenum causes pain in the middle portion of the midepigastrium and lesions of the third portion of the duodenum give referred pain low in the epigastrium. The small intestine refers its pain to the periumbilical region, and the large intestine to the midline in the hypogastrium. Pain arising in the sigmoid and rectum is often felt in the midline just above the pubic bone.

Dr. Jones pointed out several unusual areas of reference and said that pain may be felt only in the back at times, or it may be referred in a segmental distribution over the course of the intercostal or lumbar nerves, on either or both sides. Lesions of the esophagus can cause pain which is typically coronary in type, or the discomfort may be localized over the seventh cervical spine. Pain felt over the seventh dorsal vertebra may occasionally be due to lesions in the stomach, and the duodenum may cause pain over the eighth and ninth dorsal vertebrae, and sometimes may give rise to a belt of pain similar to a tabetic crisis. Lumbosacral pain is rarely due to lesions in the lower portion of the colon, and even a full bowel may cause this discomfort. Low sacral or coccygeal pain may come from a rectal lesion, and such lesions may refer the pain to the perineum.

Dr. Jones pointed out the importance of a change in the location of pain, and cited examples of patients with duodenal ulcers, who developed similar pain in a different location signifying the development of a jejunal ulcer. Magnesium oxide may cause periumbilical pain because of its stimulation of the small intestine. The pain of mucous colitis is usually low hypogastric, as it is caused by spasm of the descending colon. Since diagnosis of lesions of the small bowel is so difficult to make, umbilical pain is of great significance and should be investigated carefully, as it almost always means trouble in the small bowel. A Meckel's diverticulum, carcinoma and partial obstruction are some of the lesions which cause this type of pain.

Dr. Frank R. Ober spoke on pain in certain orthopedic conditions. In the cervical region, chronic arthritis is a common cause of pain and gives rise to considerable muscle spasm. It may be fairly well localized or may be referred to the occipital region of the head. It may cause a chronic sore throat, may cause pain beneath the shoulder blades and down the arms. Pain arising from the back may be local or referred, dull or severe, constant or intermittent, and may be affected by change of position. Arthritis in the high dorsal region may at times be confused with angina pectoris. Spinal lesions may give rise to abdominal pain, which may be contralateral. Intercostal pain is a frequent outcome of spinal disease. Pain from subacromial bursitis may be referred to the elbow, wrist or hand. Foot strain may cause pain in the sole of the foot, the ankles, knees, hips or low back. Dr. Ober stressed the importance of a detailed history describing the type of pain and its exact location, and giving those motions which aggravate it. The pain described by a malingerer is at times difficult to diagnose clearly but usually there is no limitation of motion and the patient fails to localize the pain carefully.

Dr. Elliott C. Cutler spoke on the surgical treatment of pain. This treatment is used largely for hopeless cases. He distinguished between two types of pain — visceral and somatic. The somatic pain is usually sharply localized, while the visceral pain, or autonomic pain, is less localized and varies in intensity. The surgical treatment is directed at the nervous system, and it is important, before instituting this, to make sure that the cause of the pain cannot be treated. Dr. Cutler first discussed the treatment of somatic pain, such as occurs in carcinoma or trifacial neuralgia. Alcohol injection is frequently used in these conditions. In the pelvis, metastatic carcinoma may give rise to terrific pain, and alcohol injection, posterior-nerve-root section or one of two types of chordotomy may be used to relieve it. The posterior-nerve-root section is rarely done now, but chordotomy is frequently used in some clinics. The commonest type of treatment is the subarachnoid injection of 100 per cent alcohol. Since alcohol is lighter than the spinal fluid, it floats up around the posterior roots on the painful side when the patient lies on the unaffected side. At the present time some clinics are using 60 per cent ethyl alcohol and 40 per cent methyl alcohol. Paralysis may occasionally result from this procedure, but if the patient is tipped slightly forward, the alcohol tends to bathe only posterior fibers.

The viscera are sparsely supplied with sensory nerves and are relatively insensitive. They do not feel cutting or burning, but tension causes pain. Dr. Cutler discussed the autonomic nervous system which carries these pain sensations to the spinal cord. In 1889 the so-called presacral nerve was first resected for dysmenorrhea. This was done by severing and removing the autonomic plexus of nerves around the lower portion of the abdominal aorta, and the first 5 cm. of both iliac arteries. It is used largely for inoperable carcinoma and intractable cystitis. In angina pectoris an attempt is made to interrupt afferent impulses. This was first done in 1916 by cutting autonomic nerves. Alcohol injection of the white rami is also done. The fibers coming from the heart may be present in the first to seventh dorsal ganglia, and therefore for complete sympathetic denervation, all these ganglia must be removed or injected. None of these procedures give complete or lasting relief; they are temporary and in most cases alleviate anxiety.

Dr. Walter B. Cannon discussed Dr. Davis's paper and pointed out that as a rule the severity of the pain is not always in proportion to its seriousness. Expectation and excitement profoundly influence the degree of pain that is felt, and when a person is excited, a lesion which would normally cause severe pain is not felt. Pain is usually worse at night and may be dispelled by hypnosis. The subjective factor is very important in interpreting pain. Dr. Smithwick briefly discussed Dr. Jones's paper and emphasized the points that he had made. Dr. Osgood discussed Dr. Ober's paper and called attention to the orthopedic pain that is referred to the abdomen. Excessive lumbar lordosis may give rise to such abdominal discomfort. Pain which is localized in the end of the thumb and in the arm may arise from a transverse process pressing on the first rib or from pressure on a cervical rib or some abnormally placed cervical nerve plexus. If this pressure is corrected, the arm and hand pains disappear. Dr. Mixter discussed Dr. Ober's paper and stressed the importance of relieving chronic pain in hopeless cases.

NOTICES

ANNOUNCEMENTS

VERNON P. WILLIAMS, M.D., announces the opening of an office at 330 Dartmouth Street, Boston.

JOSEPH L. LEWIS, M.D., announces the opening of offices at 189 Bay State Road, Boston, and at 751 Main Street, Waltham.

CLINICS FOR CRIPPLED CHILDREN IN MASSACHUSETTS, UNDER THE PROVISIONS OF THE SOCIAL SECURITY ACT

CLINIC	DATE	ORTHOPEDIC CONSULTANT
Haverhill	February 2	Arthur T. Legg
Lowell	February 4	Albert H. Brewster
Salem	February 7	Harold C. Bean
Gardner	February 8	Mark H. Rogers
Brockton	February 10	George W. Van Gorder
Springfield	February 16	Garry deN. Hough, Jr.
Worcester	February 18	John W. O'Meara
Pittsfield	February 21	Francis A. Slowick
Hyannis	February 24	Paul L. Norton
Fall River	February 28	Eugene A. McCarthy

ANNUAL MEETING OF THE BOSTON MEDICAL LIBRARY

The annual meeting of the Boston Medical Library will be held in Sprague Hall, 8 Fenway, Tuesday afternoon, January 25, at 4:30.

Reports will be received from the Board of Trustees, the Treasurer, the Librarian and from the various committees. Three vacancies on the Board of Trustees are to be filled. Important business, having to do with cooperation between the Boston Medical Library and the Harvard Medical School Library, will be discussed.

All fellows of the Library are urged to attend.

JAMES M. FAULKNER, M.D., *Secretary.*

MASSACHUSETTS PUBLIC HEALTH ASSOCIATION

The annual meeting of the Massachusetts Public Health Association will be held at the University Club, 40 Trinity Place, Boston, on Thursday, January 27. The sections will hold their annual meetings at 11:00 a. m., the luncheon meeting being held at 1:00 p. m.

SECTION MEETINGS

Board of Health Section

Discussion of Problems of Administrative Practice and Health Conservation Contests. Dr. Reginald M. Atwater, executive secretary, American Public Health Association, New York City.

Laboratory Section

The Registration and Approval of Public Health Laboratories as Carried Out in Connecticut. Dr. Friend L. Mickle, director, Bureau of Laboratories, Connecticut State Department of Health.

The Role of the Laboratory in the Control of Pneumonia. Dr. Maxwell Finland.

Child Hygiene and Public Health Nursing Section

The Responsibility of the Health Department in Community Health Education. Dr. Harold D. Chope, Director of Public Health, Newton.

Following the luncheon, Dr. Clarence L. Scamman, director, Division of Public Health, The Commonwealth Fund, New York City, will talk on "The Activities of The Commonwealth Fund."

G. DONALD BUCKNER, *Secretary.*

NATIONAL SOCIAL HYGIENE DAY LECTURES

On Wednesday, February 2, designated as National Social Hygiene Day, three lectures on syphilis are being sponsored by the Boston Health Department. Each will begin at eight in the evening.

One will be given by Dr. Nels A. Nelson, director of the Division of Genitoinfectious Diseases, Massachusetts Department of Public Health, at the Whittier Street Health Unit; another by Dr. Fred J. Bailey, deputy commissioner of the Division of Communicable Diseases, Boston Health Department, at the East Boston Health Unit, Paris Street; and the third by Dr. H. F. R. Watts, commissioner of health, Boston Health Department, at the West End Health Unit, 25 Blossom Street.

Physicians are urged to make these meetings a success by calling them to the attention of interested individuals and by urging them to attend.

HARVARD MEDICAL SOCIETY

The next meeting of the Harvard Medical Society will be held in the Peter Bent Brigham Hospital amphitheater (Shattuck Street entrance), Tuesday, January 25, at 8:15 p. m.

PROGRAM

Presentation of cases.

Medical Investigations in Peru in 1937. Drs. Richard P. Strong, Henry Pinkerton, and David Weinman.

Medical students and physicians are cordially invited to attend.

MARSHALL N. FULTON, M.D., *Secretary.*

SOCIETY MEETINGS AND CONFERENCES

CALENDAR OF BOSTON DISTRICT FOR THE WEEK BEGINNING MONDAY, JANUARY 24

MONDAY, JANUARY 24

*8:15 p. m. New England Heart Association. Peter Bent Brigham Hospital.

TUESDAY, JANUARY 25

*9-10 a. m. Boston Dispensary. X-ray Demonstration. Dr. Alice Ettinger.

*10 a. m. - 12:30 p. m. Tumor clinic. Boston Dispensary.

*8:15 p. m. Harvard Medical Society. Peter Bent Brigham Hospital amphitheater (Shattuck Street entrance).

*8:15 p. m. Boston Society of Anesthetists. Hotel Kenmore, Boston.

WEDNESDAY, JANUARY 26

*9-10 a. m. Boston Dispensary. Clinicopathological conference. Dr. R. C. Wadsworth, Dr. H. Houston Merritt and Dr. Arthur Berk.

*12 m. Clinicopathological conference. Children's Hospital Amphitheater.

THURSDAY, JANUARY 27

8:30-9:30 a. m. Exchange visit, surgical and orthopedic staffs of the Peter Bent Brigham and Children's hospitals, held this week at the Peter Bent Brigham Hospital.

*9-10 a. m. Boston Dispensary. Social Service Case Presentation. Mrs. H. B. Hooker, Miss E. Grundy.

11 a. m. Massachusetts Public Health Association. University Club, 10 Trinity Place, Boston.

FRIDAY, JANUARY 28

*9-10 a. m. Boston Dispensary. Some Clinical Aspects of Arthritis. Dr. Walter Bauer.

*10 a. m. - 12:30 p. m. Tumor clinic. Boston Dispensary.

SATURDAY, JANUARY 29

*9-10 a. m. Boston Dispensary. Hospital Case Presentation. Dr. Jacob Schloss.

*10 a. m. - 12 m. Staff rounds at the Peter Bent Brigham Hospital. Conducted by Dr. Henry A. Christian.

SUNDAY, JANUARY 30

4 p. m. Illustrated, public, health lecture, Faulkner Hospital auditorium. Skin Evidences of General Ill-Health. Dr. E. Lawrence Oliver.

4 p. m. Free public lecture. Harvard Medical School, amphitheater of Building D. Progress in Preventive Medicine. Dr. Frederick F. Russell.

*Open to the medical profession.

JANUARY 20 — Boston Society of Psychiatry and Neurology, 8:15 p. m. Boston Medical Library, 8 Fenway.

JANUARY 20 — Massachusetts Society for Social Hygiene, 8:15 p. m., Ford Hall, 15 Ashburton Place, Boston.

JANUARY 20 — New England Pathological Society, 8 p. m., amphitheater of Children's Hospital, Boston.

JANUARY 24 — New England Heart Association. Page 95, issue of January 13.

JANUARY 25 — Harvard Medical Society. Page 140.

JANUARY 25 — Annual meeting of the Boston Medical Library. Page 140.

JANUARY 25 — Boston Society of Anesthetists. Page 95, issue of January 13.

JANUARY 27 — Massachusetts Public Health Association. Page 140.

FEBRUARY 1 — Greater Boston Medical Society. Auditorium of the Beth Israel Hospital, Boston, 8:30 p. m.

FEBRUARY 2 — Second National Social Hygiene Day. Page 49, issue of January 6, and page 140.

FEBRUARY 10 — Pentucket Association of Physicians. Hotel Bartlett, 95 Main Street, Haverhill, 8:30 p. m.

FEBRUARY 14 — American Board of Internal Medicine. Page 969, issue of December 9.

FEBRUARY 21 — Boston Medical History Club. 8:15 p. m., Boston Medical Library, 8 Fenway.

MARCH 10, 11, 12 — New England Hospital Association. Page 51, issue of January 6.

APRIL 4-8 — The American College of Physicians. Page 41, issue of July 1.

MAY 31, JUNE 1 and 2 — Annual meeting of the Massachusetts Medical Society. Hotel Bradford, Boston.

OCTOBER 17-21 — Clinical Congress of the American College of Surgeons, New York City.

DISTRICT MEDICAL SOCIETIES

BRISTOL SOUTH

MAY 5 — 5 p. m., New Bedford.

ESSEX SOUTH

FEBRUARY 2 — Council Meeting, Boston.

FEBRUARY 9 — Essex Sanatorium, Middleton. Clinic at 5 p. m. Dinner at 7 p. m. Speaker: Dr. John B. Hawes, 2d. Subject: Dust and Disease.

MARCH 2 — Lynn Hospital. Clinic at 5 p. m. Dinner at 7 p. m. Speaker and subject to be announced.

APRIL 6 — Gloucester Hospital, Gloucester. Clinic at 5 p. m. Dinner at 7 p. m. Speaker and subject to be announced.

MAY 5 — Censors meet at Salem Hospital, 3:30 p. m.

MAY 11 — Annual meeting, Salem Country Club, Peabody. Dinner at 7 p. m. Speaker and subject to be announced.

FRANKLIN

Meetings will be held at the Franklin County Hospital, Greenfield, at 11 a. m. the second Tuesdays of March and May.

HAMPDEN

Meetings will be held on the fourth Tuesday in January, April and July.

MIDDLESEX EAST

Meetings will be held at the Bear Hill Golf Club, Stoneham, at 12:15 p. m. on March 16, and May 11.

MIDDLESEX NORTH

Meetings will be held at the Vesper Country Club, Lowell, on January 26 and April 27.

NORFOLK DISTRICT

JANUARY 25 — Page 94, issue of January 13.

FEBRUARY 23 — Hotel Kenmore. 8:15 p. m. Dermatitis Venenata Due to Cosmetics and Industrial Irritants. Dr. John G. Downing. Discussion by Dr. Francis P. McCarthy.

MARCH 29 — Hotel Kenmore. 8:15 p. m. Subject to be announced but to be related to diseases of the kidney. Dr. Albert A. Hornor.

MAY — Annual meeting.

The censors meet on the first Thursdays of May and November in each year.

NORFOLK SOUTH

Meetings held at 12 noon.

FEBRUARY 3 — Norfolk County Hospital, South Braintree.

MARCH 3 — Norfolk County Hospital, South Braintree.

APRIL 7 — At the Quincy City Hospital.

MAY 5 — Annual Meeting.

PLYMOUTH

Meetings will be held at 11 a. m. on January 20, March 17, April 21, May 19 and July 21.

SUFFOLK

MARCH 15 — Joint meeting with Boston Obstetrical Society.

WORCESTER

At the following meetings, except the annual meeting, dinner will be at 6:15, to be followed by business session and scientific program.

FEBRUARY 9 — Worcester State Hospital, Worcester.

MARCH 9 — Memorial Hospital, Worcester.

APRIL 13 — Hahnemann Hospital, Worcester.

MAY 11 — Afternoon and evening, annual meeting. Place and schedule of program to be announced.

BOOKS RECEIVED FOR REVIEW

Artificial Fever: Produced by physical means; its development and application. Clarence A. Neymann. 294 pp. Springfield and Baltimore: Charles C Thomas, 1937. $6.00.

Primary Carcinoma of the Lung. Edwin J. Simons. 263 pp. Chicago. The Year Book Publishers, Inc., 1937. $5.00.

A Primer for Diabetic Patients: An outline of treatment for diabetes with diet, insulin and protamine zinc insulin including directions and charts for the use of physicians in planning diet prescriptions. Russell M. Wilder. Sixth edition, reset. 191 pp. Philadelphia and London: W. B. Saunders Company, 1937. $1.75.

Practical Proctology. Louis A. Buie. 512 pp. Philadelphia and London: W. B. Saunders Company, 1937. $6.50.

Minor Maladies and Their Treatment. Leonard Williams. Seventh edition. 439 pp. Baltimore: William Wood & Company, 1937. $3.75.

Pre-Natal and Post-Natal Management. J. St. George Wilson. 206 pp. Baltimore: William Wood & Company, 1937. $4.00.

A Text-Book of Ophthalmic Operations. Harold Grimsdale and Elmore Brewerton. Third edition. 322 pp. Baltimore: William Wood & Company, 1937. $6.00.

Genital Abnormalities, Hermaphroditism and Related Adrenal Diseases. Hugh H. Young. 649 pp. Baltimore: The Williams & Wilkins Company, 1937. $10.00.

A Bibliography of the Works of Ambroise Paré: Premier Chirurgien and Conseiller du Roy. Janet Doe. 266 pp. Chicago: The University of Chicago Press, 1937. $5.00.

A Method of Anatomy: Descriptive and deductive. J. C. Boileau Grant. 650 pp. Baltimore: William Wood & Company, 1937. $6.00.

The Surgery of the Sympathetic Nervous System. George E. Gask and J. Paterson Ross. Second edition. 191 pp. Baltimore: William Wood & Company, 1937. $4.50.

BOOK REVIEWS

The Collapse Therapy of Pulmonary Tuberculosis. John Alexander. 705 pp. Springfield and Baltimore: Charles C Thomas, 1937. $15.00.

This book represents not only the most recent but probably the most comprehensive volume ever written on this subject. It can be considered in no way a second edition of Alexander's monograph on *The Surgery of Pulmonary Tuberculosis,* which appeared twelve years ago. The present book is new in its concept and presentation, and is exhaustively detailed.

A departure is made in the usual sequence of presentation of material by discussing end results in the first chapter. Comparative statistics are given which amply justify and stress the importance of such therapy in pulmonary tuberculosis. The multiplicity and complexity of various available procedures, which have been designed to effect a collapse of the lung, are discussed. The matter of providing the personnel and facilities for major surgery for isolated sanatoriums is dealt with, and the qualifications for a thoracic surgeon are outlined. This chapter should be of definite interest to sanatorium superintendents, boards of trustees and public-health officials.

The value of the book has been greatly enhanced by certain fundamental chapters written by collaborators. The direct and logical presentation of pulmonary physiology in relation to collapse and the authoritative discussion of pathology by Max Pinner are alone worth the price of the book. For those actively engaged in the medical care of patients, the chapter by John Barnwell on "Pneumothorax" will be materially helpful.

From the standpoint of all readers of the book the greatest interest will focus upon the chapter dealing with the choice of operation. Here Alexander indicates how he "picks his cases." Line diagrams of 84 types of pulmonary and pleural lesions are shown, each with a suggested plan of treatment. Even though it has been pointed out that the selection of operations should not be made from the roentgenogram alone, it is quite likely that this part of the book will be used in various sanatoriums as a "thumb rule" of collapse therapy, just as physicians use an indexed prescription book to suggest drug mixtures for major-presenting symptoms. Surgeons who do not know the fundamentals of collapse therapy or the basis underlying the principles of each procedure in question should have no voice in the selection of a collapse measure. Those who do will give better advice by not matching up the patient's x-ray with a book diagram, and not being guided by a proposed schedule of treatment combinations.

Other shortcomings might be pointed out for those who might consider using the book as a "bible of collapse therapy." Thoracic surgery is a relatively young branch of surgery. Many operations are not as yet standardized. Therefore, it is unfortunate that the author passes judgment on certain procedures on purely theoretical grounds. In certain instances this has been done after specifically stating that the author has had no personal experience with a particular method. It is also regrettable that certain operations receive such scant mention. Two such procedures are pneumonolysis, or lung mobilization concomitant with thoracoplasty, and extrapleural pneumonolysis with maintenance of an extrapleural pneumothorax. To the reviewer it seems that these procedures may in the future be highly regarded and take an important place in collapse therapy. In such a volume the author might well have considered a chapter on roentgenologic problems in pulmonary collapse, because of its essential bearing on the management of such patients. In the chapter on anesthesia, nitrous oxide and oxygen has been unconvincingly proposed as the ideal for such cases. The whole anesthesia problem, one of the most vital of all, is hardly treated with its just deserts.

There are so many fine things about the book, however, that its merits far outweigh its shortcomings or debatable subject matter. It can be highly recommended to all students of pulmonary disease.

Operative Obstetrics: A guide to the difficulties and complications of obstetric practice. J. M. Munro Kerr, with the assistance of Donald McIntyre and D. Fyfe Anderson. Fourth edition. 847 pp. Baltimore: William Wood & Company, 1937. $12.00.

This book is an extremely thorough and detailed work by a well-known obstetrician and teacher. As the title indicates, it is not a book for the student but rather for the more advanced man who has had a good basic training in normal obstetrics. The book is excellently written in simple and clear English with entire absence of verbosity. The writer puts his thoughts and opinions on paper in such a way that they are easily understood by the reader. The text is well filled with good diagrams and pictures.

It is of particular interest that this work coming from Scotland differs so little from the accepted teachings in this country. There are no important points of difference in methods of treatment from those to which we are accustomed. In certain procedures the author could find support for his opinions in many of our publications. However, the practice of injecting uroselectan into the amniotic cavity to ascertain the position of the placenta seems somewhat drastic. The writer does admit that this will start patients in labor.

The author has an excellent chapter on prenatal care. Sepsis and avoidance of vaginal examinations are well emphasized. Destructive operations on the dead fetus for the sake of the mother are fully argued. This point might well be brought more often to our attention. While showing a conservative attitude toward cesarean section, the writer feels that this is frequently the proper treatment for the elderly primipara. His enthusiasm for external version in all breech positions has a very sound basis. In vertex-posterior positions he favors manual rotation whenever possible. A rather simple procedure of possible value is that of pressure on the abdominal aorta in cases of postpartum hemorrhage.

In regard to anesthesia the author admits the dangers of chloroform but at the same time states that it is the most convenient anesthetic and is safe in ordinary simple deliveries. He rather surprisingly dismisses ether because of the bronchial catarrh following its use, and states that in most large hospitals nitrous oxide and oxygen is the standard procedure. He is most enthusiastic over spinal anesthesia in cesarean section and in hard, forceps deliveries. Local infiltration with novocain is recommended for perineal repair and low forceps. The author is not enthusiastic over the use of analgesics in the first stage of labor but does admit their occasional value. Chloral hydrate and potassium bromide, and morphine and scopolamine, are his first choices.

The book can be recommended most highly to those who desire a fresh and up-to-date point of view on the obstetrician's problems.